# Editorial Notes.

## VOLUME THIRTEEN.

THE early years of a journal are so fraught with danger, so many young and ardent ones perish early in the strife, that in commencing our 'teens, as we do this month, we almost seem to be entering on a green old age. In our younger days we had some hard fighting with old-established prejudices and Conservative respectabilities, but by this time most of those who at first opposed us have either become fast friends or have reconciled themselves to our existence. We are thankful to all who have aided us in time past, and in the future, too, we hope to have their friendly assistance. It is our wish, as it is our interest, to make this journal as useful to the trading chemist and druggist as it is possible for it to become; and we cannot but think that if he will look through its pages with an intelligent eye, he will be able to far more than repay the subscription which we ask from him. By universal consent the CHEMIST AND DRUGGIST is recognised as the organ of the trade; we are honoured as the medium wherein are published the announcements of all the leading houses; and on that ground alone we think our paper ought to be in the hands of every British chemist and druggist. We progress in that direction year by year, and we hope to see the day when there shall not be a solitary odd man in the trade and out of our books. Readers in foreign parts need not to be informed of our usefulness; but we may ask them, when opportunities occur, to be good enough to mention the CHEMIST AND DRUGGIST to friends to whom our pages should also be useful. We have to acknowledge many favours in this respect from our readers abroad. Heartily wishing our readers everywhere prosperity and happiness, we proceed to the serious business of 1872.

## THE LONDON INSTITUTION.

THE four Christmas lectures on "The Philosophy of Magic," which were recently delivered at the London Institution, by Mr. J. C. Brough, F.C.S., the principal librarian, were most unequivocally successful, and called forth such enthusiastic applause from the crowded audiences, largely composed of juveniles, as has seldom been heard in that theatre, and they have no doubt left an impression on many a youthful mind that the London Institution is not such a dreadful place after all. In the course were exposed, the Magic of Modern Conjurers, the Magic of the Theatre, the Magic of the Mediums, and the Magic of the Laboratory; which were illustrated by mechanical conjuring tricks, optical illusions, pseudo-spiritual manifestations, and elucidatory scientific experiments. Mr. Brough performed his experiments with great manipulative skill, they were all well chosen, and many were very effective.

## A RUN ON THE BANK.

THE persistent Colonel Tomline, M.P., who would live and die happy if the Mint would only coin some silver for him without charging for the process, has lately extracted a useful fact in the course of his repeated attacks on Mr. Lowe. He sent to this gentleman in his capacity as Master of the Mint, two of those sixpences whose faces and backs are smooth as writing-paper, representatives of thousands in circulation, but chosen as representatives because they had won the hard-earned distinction of being refused by omnibus conductors. With them he triumphantly asks how the ministerial assertion is supported, that, in return for the profit on the coinage the Government maintains the standard of silver. Mr. Lowe has a victorious answer, but wins a victory for the Mint at the Bank's expense. We predict a smart run of business for the Bank of England and its branches in changing worn sixpences for new ones. The following is the letter:—

5th January, 1872.

Sir,—I am directed by the Master of the Mint to acknowledge the receipt of your letter of the 2nd instant, and to inform you that worn silver coin is received and exchanged at the Bank of England and its branches. The two new sixpences enclosed have, in accordance with this regulation, been procured at the Bank of England in exchange for the two worn coins forwarded in your letter.—I have the honour to be, Sir, your most obedient servant,

C. W. FREMANTLE.

Colonel Tomline, M.P.,
1, Carlton-terrace, S.W.

## TAXES.

CHRISTMAS festivities and New Year's congratulations are over, and the assessed taxes are due. The reaction first, immediately followed by the provocation, introduce into the minds and hearts of most Britishers an insane desire to quarrel with somebody. The circumstances naturally suggest the Chancellor of the Exchequer as the most fit object of our wrath, and as no particularly obnoxious pharmaceutical demon is in sight at this moment, we take the opportunity of joining our bark with that of many contemporaries against the ever increasing demands of our constitutional but very costly Government. The spirited letter on taxation addressed to Mr. Lowe, a copy of which has been sent to us by the writer, which appears on another page, is in some senses amusing, but is not by any means all nonsense; and in sober earnest we gladly recognise the growingly intense feeling in favour of strict economy and retrenchment. The enormous annual expenditure to which in a time of profound peace we have arrived must surely bear some pruning; but if not, it may be righteously urged that the incidence of taxation does not rest with its fair weight on the wealthy classes of the country, who benefit so largely by the expenditure of the money. Mr. Lowe did his best to ruin a most promising financial reputation last year, and he will ruin it irretrievably unless his next budget indicates that he is able to estimate rightly the indulgence with which his miserable *fiasco* of 1871 has been treated.

## THE EXAMINATIONS EXAMINED.

AN article appears on another page on "Pharmaceutical Education and Pharmaceutical Examinations," written by Mr. Louis Siebold, and read before the Manchester Chemists' and Druggists' Association. We are unaware at present how far Mr. Siebold's views accord with those of the Assocition generally, but we really hope that Manchester pharmacy is not going to make a platform of the cries which Mr. Siebold would set up of "A Lower Standard" and "No Botany" as regards the established examinations. Like the Athenians of old, the Mancastrian pharmacists delight to hear or to tell something new, and if that "something new" should be calculated to make ears tingle at Bloomsbury-square, it may be an open question whether the delight is thereby alloyed or augmented. Manchester can run a good ticket better than any city in England, but this one will be no credit to her. We are sorry and surprised to find that a gentleman with the very respectable reputation which Mr. Siebold has won should have come forward as the champion of the dunces. He would eliminate from the pharmaceutical examinations not only botany but also (if we understand him rightly) the recognition of pharmaceutical products (!), the demand for an intimate acquaintance with the Pharmacopœia (!!), and lastly, a fitting climax, practical dispensing (!!!). Those who would know why these startling revolutions are suggested must read Mr. Siebold's paper. They will find that paper teeming with excellent arguments in favour of a most stringent examination, and yet the author finding that many men, imperfectly educated, are remorselessly referred back, comes to the conclusion of proposing this astounding scheme. He says that many of the best men are plucked simply because they are overcome with nervousness at the critical moment, while the most ignorant are often the most plucky. This statement, in substance, is neither new nor true. There is nothing breeds nervousness so surely at an examination board as conscious ignorance; while we also rejoice that we have such arrangements as will send back even a good man, again and again if need be, simply that his nervousness may be conquered before he can be pronounced to be duly qualified as a chemist and druggist.

## EVANGELINE IN BLUE SILK.

Ye who delight in dancing, who practise the art Terpsichorean,
Whose souls are entranced with the sounds which the harp and the violin utter,
Whose feet catch the melody's rhythm as it changes from polkas to waltzes,
Remember the welcome announcement of a ball on the evening of Wednesday.

Ye who before have attended this annual ball of the chemists,
Think of the brilliant scene, of the dazzlingly beautiful ladies,
Recall Mr. Coote to your mind, and do not forget Mr. Tinney,
And remember the gorgeous supper, and the merriment lasting till morning.

Ye who are doomed to labour from one year's end to another,
Dispensing bottles of medicine, or choking with chemical vapours,
Burst from your thraldrom that evening, be merry one night in the twelvemonth
At the Ball at Willis's Rooms, in St. James's, the home of the happy.

A word to the wise is sufficient :—Evangeline pineth in silence,
Then invest some of last year's gains, and consider her smiles a rich harvest,
Pay off your Christmas bills, and subscription to "CHEMIST AND DRUGGIST,"
Then order a hansom cab, and be off to the ball of the chemists.

## ALCOHOLOGY.

WE can scarcely over-estimate the importance of the medical manifesto concerning alcohol, which has been published during the past month. Will our readers turn to the article entitled "Medical Gleanings" and read the declaration carefully? It is well worthy of such attention. It is an honest, temperate, and judicious statement of the case against alcohol from a medical point of view, and the 250 eminent names which appear at the foot of the document as signatures, add to its simple and clear sentences a weight of influence which it would be the utmost folly to depreciate. We scarcely read with patience the querulous hypercriticisms which Dr. Beale, Mr. Skey, and others have thought fit to publish, who seem to quarrel with the document because it does not acknowledge their pet dogma that the medical profession can do no wrong. It is a hopeful fact that all classes are awakening to a perception of the curses which alcohol so universally spreads around. Health undermined, fortune and comfort gone, soul and body stunted in their growth; is that a fancy picture, or the barest recital of the most palpable facts of society, known and admitted to be the work of alcohol? "Many people immensely exaggerate the value of alcohol as an article of diet." Let them mix some spirit with a solution of albumen outside the stomach instead of within, and when they see the gelatinous mass, they will no longer wonder why it is that they should suffer so constantly from indigestion. There is not much doubt that the country is ripening for legislation on this subject, and in no discussion of the merits of the case can this medical declaration be overlooked. We should like to add one sentence on the "aspect of the matter, specially pertinent to pharmaceutists." The *Pharmaceutical Journal* brings out some of the worn-out old rubbish which was popular a year ago, and submits it to the careful consideration of its readers. We never had much faith in the free-hand sketches, which the *Saturday Review* but lately presented, in which the upper-class ladies were depicted sipping from their eau de Cologne bottles *faute de mieux*. But at any rate we see nothing in the idea "specially pertinent to pharmaceutists," which the *Pharmaceutical Journal* says there is. As far as we can discover any meaning at all in the editorial note of our contemporary on this subject, it seems to be that "pharmaceutists may very well strengthen the hands of the medical profession in their laudable endeavours to stem the alcoholic current" by watching their customers; and we presume, reporting every lady who buys a bottle of eau de Cologne, a little spirits of lavender or sal volatile, and branding her thenceforth with the suspicion of being a secret tippler.

## OUR DIARY FOR 1872.

"THE CHEMISTS' AND DRUGGISTS' DIARY AND PHARMACEUTICAL TEXT-BOOK" has met with such universal favour wherever it has gone, that we are emboldened to press the chemist who reads this, and has not obtained one, to do so without delay. The formulæ from other lands, which were compiled with extreme care, are undoubtedly calculated to be very serviceable, and there are many other items in it which make it a cheap investment for a pharmaceutist. The *Pharmaceutical Journal* gives a long and very favourable review of its contents, and speaks of it as containing "a great quantity of valuable information." *Mather's Price Current* describes it as "a very excellent diary," and Messrs. Burgoyne, Burbidges, and Co.'s *Export Prices Current* says "it will admirably serve the double purpose of a diary and writing-pad, and must become an indispensable article of furniture on the desk of the retail chemist." The *European Mail* says it is "an illustration of the practical age in which we live. Every line of its contents is a note of value to those in whose interest the work is compiled." The *Overland Mail* says "the editor has kept well before him the necessities of the profession;" and the *London Figaro* says "it is one of the most useful publications of the year—at any rate so far as the dispensers of drugs and chemicals are concerned. We should as soon expect to find them doing without their mortars and pestles, as without this really indispensable accompaniment to their desks." It is sold for 2s., handsomely bound, and the diary pages are interleaved with blotting-paper. A cheaper edition without the blotting-paper is sold for 1s. Postage of either, 3d. extra. Or it may be obtained from Messrs. Maw or Mather.

# Foreign Correspondence.

## GERMANY.

### STRIKES OF ASSISTANTS, ETC.

(FROM OUR OWN CORRESPONDENT.)

DRESDEN, JAN. 8TH, 1872.

WAR and strikes were the characteristic signs of the past year. The warlike events of the first part of the year acted on the minds of many of our otherwise peace-loving nation as a sort of ferment, the final chemical products of which resulted in strikes. Striking became fashionable, and the reporters, not yet quite recovered from their war fatigues, had again to sharpen their pens. Even our profession, since old times noted for the peaceful inclinations of its followers, and for a deep respect for time-honoured institutions, found itself threatened by a strike. Curiously enough, the first impulse came from Königsberg, the very town which gave the first inducement for the movement of the year 1813. Some chemists' assistants there called a meeting together for the purpose of taking into consideration means for improving their social position. Their proclamation met with a ready response in several large towns of Germany, and in Berlin a central committee was established, and a *plébiscite* held about the following demands, to be laid before the employers:—

I. An advance of salary to at least 200 thalers (£30) a year.

II. Abolition of the free board, and instead of this a compensation of 180 thalers.

III. Improvement of the lodgings.

The result of the *plébiscite* was that over 1,100 assistants voted for, and 117 against these demands; but in Berlin and other towns the principals simply declined to entertain the applications of their assistants. The first two points of the programme may be open to many objections, but as regards the third there can be no doubt that an improvement is really needed. Chemists' assistants here are not of a particularly romantic disposition. Weights and figures and long hours very nearly suffocate the flames of romance which may have burned brightly enough when their hearts were younger; and even now they may be awakened from their lethargy sometimes. The hand-writing of prescriptions may sometimes appear to them like the cabalistic signs of the old soothsayers, and the sweet red lips of a fair customer telling them of a sore throat may almost suffice to upset the equilibrium of their souls, and revive the fading embers of chivalry within them. But surely they need not possess a grain of fantasy to make them in many cases believe that they have been thrown back some centuries, and are now living in an old monastery, in a cell with four blank walls, and some mice as their only amusement. Whether it was originally intended by this state of things to make the assistants pious, God-fearing men, as the old "Apotheker-ordnung" of 1725 requires them to be, cannot be stated at present, and how far it may have succeeded in this direction is not for us to discuss, but one thing is clear, and that is that the assistants have at last become dissatisfied with such a condition of affairs, and certainly not without reason. It was wrong to refuse their just and modest demand; and such a refusal will not serve the true interests of Pharmacy, for the present state of the profession in Germany offers very little inducement for young men to enter it. However, for the present, this movement of the assistants has entirely failed, and it is not very likely the subject will be brought on again for some time.

The new year has placed the public on the same footing with the chemist as regards weights and measures. The whole German empire has now adopted the French system, and heaven be thanked for it, for a great nuisance has been done away with. The South German chemist uses now the same weights with which his North German brother has become familiar for three years, but one can hardly suppress a certain feeling of regret that the scruples, drachms, and ounces, which looked so mysterious and homely upon the apprentice have now entirely taken leave of us, and will soon live only in the remembrance of some old pharmacists.

Among eminent German pharmacists who departed this life in the course of the past year Herr Schacht must be mentioned, who died at Berlin at a great age. He was highly esteemed by his brother-pharmacists and by the authorities. Although retired from active business for several years, he still took a lively interest in all pharmaceutical affairs, and his advice was often sought for.

It may not be unimportant to draw the attention of chemists to an observation of Husemann in Göttingen. He recommends as the best antidote in cases of poisoning by carbolic acid, the use of calcaria saccharata, to be prepared in the following way:—

Dissolve sixteen parts of best sugar in forty parts of water, add five parts of slaked lime, digest for three days, occasionally stirring, filter, and evaporate to dryness in a steam-bath.

## FRANCE.

(FROM OUR OWN CORRESPONDENT.)

PARIS, January 9, 1872.

FROM the dullest of all Decembers, siege times excepted, as well as the coldest, wettest, and muddiest, we are glad to emerge into eighteen hundred and seventy-two with an occasional gleam of sunshine and blue sky. High winds with frequent rainfalls, the sovereign deputies still provisionally *en seance* in the suburban capital, and the multitude of annual reckonings all combined, detract somewhat from our complete serenity.

There is, however, to be discerned in business circles a feeling of increased buoyancy, and a determination to make the present year sufficiently active to efface the traces of the sad ones just expired. Frequent intercourse with the manufacturers and wholesale merchants of Paris impresses me very strongly with a recognition of the fortitude with which they support the many losses and business entanglements caused by the war and insurrection, and I have the greatest confidence in the business progress of the next few years should a peaceable status be maintained.

Looking about among the old clients of the CHEMIST AND DRUGGIST, here I find them all alive and well with one exception. Eugéne Dorville breathed his last quite recently in his native city of Lyons; his health was much shattered by his sufferings during the siege. At that period he enlisted in the Engineers for service in the forts and fortifications. As an analytical chemist he had an excellent *clientèle* in the commercial world, and speaking the English language with fluency, he was especially alive to a more developed business between France and the United Kingdom. He was a regular subscriber to the CHEMIST AND DRUGGIST, and frequently advertised in its pages.

The splendid modernised premises of Messrs. Rigaud and Lecompte, just completed, in the Rue Vivienne, at the commencement of the war, are in perfect condition, but their extensive laboratory at Neuilly was much damaged by the artillery practice during the Commune. The specialities of this eminent house, under the trade-marks of "Rigaud and Co." and "Grimault and Co," are world-known, and in enterprise and breadth of ideas the executive partner of the house, M. Rigand, is an exceptionally good business man. The pharmaceutical specialities of Grimault and Co. have been received with especial favour in the remoter British colonies.

A representative house in machinery is that of M. Hermann La Chapelle, in the Faubourg Poissonniere. The small vertical steam engines produced at these works are much in vogue in France and her colonies. The annual production of those machines is between one and two thousand, and they are claimed to be the most perfect small engines constructed. An extensive portion of M. La Chapelle's operations is directed to the manufacture of syphons, and the requisite bottling apparatus for them, which, on account of the unusual excellence of their construction, have been accepted in all parts of the world, and have been awarded the medals at several expositions. The head of this house is of the very best type of French business men. No house in this branch of manufactures is better or more reputably known. During the siege of Paris, the immense resources of M. La Chapelle's establishment were directed to the casting and finishing of cannons many of which afterwards fell into the hands of the Communists.

The consumption of carbonic acid waters in France is fabulous, and the development of the traffic in them for a few years past has been rapid. The "syphon" is in universal request in *cafés, restaurants, estaminets*, and also in private families, in the mild and hot months, to enliven the red wine, and it forms a very agreeable and refreshing *mélange*. The quality of these fabricated waters has, it must be remarked, much deteriorated latterly, and the more delicate palates have abandoned them in favour of the natural waters which mix well with wine; of these the most in vogue is the *St. Galmier*, a mild mineral water, which does not discolour claret, as is the case with Vichy, and is also of a feebler medicinal type. The *Eau de Vals*, now in high favour, may also be drunk with the *vin ordinaire*. Vichy is the prime favourite, and the *colosse* of all the natural mineral waters of France. The annual sale has been stated to be upwards of forty millions of bottles.

One of the greatest disasters sustained by any house in the drug trade during the war, was the destruction of the extensive chemical works at Asnières, on the Seine, belonging to Messrs. Storck and Co., of the Rue St. Croix de la Bretonnerie. These works had been entirely re-fitted only a few months previous to the siege. They escaped injury up to the time of the fighting with the Commune; but at that epoch they unfortunately lay in the direct line of fire of the Versailles artillery. As is well known, the village of Asnières was pretty well knocked to pieces, and the works of Messrs. Storck offered a good mark for old Valerien and the advancing troops. A greater wreck it would be difficult to find; but at this moment the work of reconstruction is in progress, and ere long the rehabilitated structure will be in full work. The splendid premises of this eminent firm in the Quartier du Temple, unsurpassed in the wholesale drug trade in any country to my knowledge, except by the "Pharmacie Centrale de France," in the Rue Jouy, were entirely uninjured.

Messrs. Limousin, of the Rue Blanche; Delpech, of the Rue du Bac, and Grillon, of the Rue de Gramont, all remained at their pharmaceutical posts during the trying times. The Tamar-Indien of the latter is winning its way with you in England, and I hope to see the excellent specialities of our much-esteemed M. Delpech soon acclimated in London, as they deserve to be. The fertile Limousin has adopted the *dragée* as an envelope for chloral hydrate, replacing the capsule already favourable known with you. The medicated *dragée* seems yet to have its spurs to gain in England. In France, the United States of America, and all colonies having relations with the French pharmaceutical world, they are in the fullest vogue. As one of the illustrations of elegant pharmacy, and perhaps the most successful, they are worth emphasising.

The stocks of French specialities in foreign countries having become exhausted during the period that Paris was closed for business, a splendid rush of orders came in on the re-opening, and it is gratifying to know that many houses have not yet succeeded in bringing up the arrears. After all, every cloud has its silver lining. The productions of M. Brou de Laveyssiere, of Dr. St. Gervais, and others which have a cosmopolite sale, have been in large demand. Among the French toilet preparations known in England, none has more quickly acquired a position than the "*Eau des Fées*," and we may ascribe much of its success to the excellent business management of Madame Sarah Félix.

The great disinfectant question which has waxed so warm with you during the year past is imminent here. Carbolic we already have among us, and chloralum is threatened for the coming season. The authorities seem to cling to the chloride of lime, occasionally carbolic powder is used. Chloralum has yet to get a fair hearing, and whether it will be able to hold its own with the critical Frenchmen remains to be seen. Some effective deodorizer is very much wanted here.

On a sunny afternoon Helmbold—he of buchu fame in America—may be seen puffing his cigar upon the Boulevard; but here in Paris there are few about to say, as in New York, "there goes Helmbold"—greatness is not often cosmopolite.

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The Honourable Corporation of Trinity House have accepted the tender of Sir W. A. Rose and Co., of London, for the supply of 415 tuns Refined Rapeseed Oil for the English light-houses.

## PHARMACEUTICAL EDUCATION,

### AND ITS RELATION TO PHARMACEUTICAL EXAMINATIONS.

We print below the chief part of a lecture with the above title, delivered by Mr. Louis Siebold at the monthly meeting of the Manchester Chemists' and Druggists' Association, held on January 5th, Mr. J. T. Slugg, F.R.A.S., vice-president, in the chair.

Mr. Siebold commenced his lecture by remarking that the promoters of the Pharmacy Act had two principal objects in view, viz., to raise the chemists and druggists from the comparatively low position they occupied to the rank of professional men, and to protect the public from the dangers arising from the dispensing of medicines by incompetent persons. By a singular and most unaccountable oversight on the part of those who framed the Act, this second object was frustrated, as the examinations and consequently the education were made compulsory for those only who want to carry on business on their own account, and not for the assistants, by whom at least nine out of every ten prescriptions are dispensed. There is not a single clause which protects the public by excluding unqualified men from the practice of dispensing, so long as they choose to remain assistants; and the friends of the Pharmacy Act, who are loth to consider the enactment a complete failure, must cling to the first named object with the hope of seeing it accomplished. To raise by means of scientific education the social position of men whose vocation is not inferior and no less responsible than that of medical practitioners, is a worthy and noble object, and interest and duty alike should prompt us all to aid its furtherance.

The preliminary examination Mr. Siebold considered wise and judicious, and should be passed by the student before entering on his apprenticeship, for this valuable period ought not to be spent in picking up rudiments of education which should have been acquired at school. The manner in which a chemist and druggist acquires his technical education was then enlarged upon, and the lecturer pointed out the duty of masters towards apprentices. Whoever does not want to teach, he said, ought not to take an apprentice. Coming now to the scientific branches of a young pharmacist's education, it was shown that a knowledge of chemistry and materia medica is indispensable, if we wish to have a clear conception of the work we are daily performing, to say nothing of its being necessary for passing the examinations. In large towns, where suitable lectures are provided which greatly help to facilitate the young man's exertions, he ought to be not only allowed, but encouraged to avail himself of such means, unless his employer is in a position himself to instruct him efficiently. In country places, however, where such opportunities do not exist, the youth is chiefly dependent on reading books; but even this method of study should answer the purpose, provided the books be well selected, and the help and advice of the employer not withheld. About six hours per week set apart for study and spent diligently will, as a rule, suffice for the student, not indeed to become a scientific man *par excellence*, for such is not expected or needed even of the chemist and druggist of the future, but to attain to that amount of scientific knowledge which is required for the efficient discharge of his duties, and which will eventually assure him an honourable place amongst his professional brethren. Great mistakes are made in the selection of books. Beginners should avoid large books, whose contents it would take them years to master, and should remember that, to know the rudiments of a science thoroughly and soundly, is much better than to have a superficial notion of most of its details. Short elementary books are most preferable for beginners, whilst the study of larger volumes may be recommended to more advanced students, say to assistants, who have passed their examinations, and who aspire to distinguish themselves in one science or another.

In studying chemistry the beginner cannot be too strongly recommended to pay careful attention to the introductory topics of that science. Definition and object of chemical science, definition of elementary substances and chemical compounds, the laws of chemical combination, specific gravity and its determination, and the molecular and atomic theory. These subjects form the very foundation of the chemical edifice, and unless they are thoroughly mastered by the student, his knowledge of chemistry will be always cloudy and unsound. The sources, the mode of preparation, and the main properties of the elementary substances and their compounds, should then be gone through, and the use of the modern symbolic expressions for their compositions and decompositions should be well understood and appropriated. The chemical compounds, both organic and inorganic, being exceedingly numerous, the pharmaceutical student should devote his attention chiefly, though not exclusively, to those used in pharmacy; and he must learn how to recognise those by test, and how to detect impurities in the same. A knowledge of qualitative analysis is not absolutely necessary, but appears highly desirable, and where means are at hand to obtain the same it would be folly to neglect them.

The study of materia medica merits the same attention on the part of our young men as that of chemistry. It is here that they learn to recognise our numerous roots, leaves, seeds, gums, resins, and the like, by their outward appearance; to distinguish between good and inferior qualities of those substances, and to detect adulterations.

The botanical and geographical sources of the drugs, and their doses, likewise form part of the study.

That branch of Materia Medica which is called Pharmacology is taught principally to medical students; it treats chiefly of the medicinal effects produced by the substances alluded to on the different organs of the human body, and a superficial knowledge of it amply suffices for the purposes of a chemist and druggist. I hardly need to point out the great utility, or rather the necessity of, a good acquaintance with chemistry and materia medica to the pharmacist. Without it his daily work will be that of a machine and not that of a reflecting being, and great indeed must be the danger to which his ignorance may expose him. We should be able to judge whether the articles we receive from wholesale houses are really what they are meant to be, and whether they are good and pure enough for the intended purposes. Wholesale houses may make mistakes, which, if not discovered by us, might lead to serious results. Not very long ago (Mr. Siebold continued) powdered binoxalate of potash was sent to me instead of cream of tartar, and was labelled Potass. Bitart., and if I had overlooked the mistake, who knows what the consequences might have been. The wholesale druggists of this country deserve the highest credit for the careful and admirable manner in which their business is conducted, and mistakes of a serious nature very rarely occur, yet we ought not to be entirely dependent upon them, as we are if we cannot identify the substances purchased, or see whether they are of the required quality, strength, etc.

Need I say a word about the importance of our knowing the doses of poisons and their preparations with which we are dealing? Who can deny that, but for our knowledge and care in detecting over-doses of poisons, hundreds of human lives would be sacrificed every year by the errors in medical men's prescriptions? Nothing indeed can be more apparent than the absolute necessity of our daily manipulations being guided and assisted by scientific knowledge. But clear and true as this is to everybody in reference to chemistry and materia medica, the same, I feel sure, cannot be said with regard to botany. I venture to assert that a chemist and druggist can fulfil all his professional and business duties in the most perfect and efficient manner without knowing much of botany, and unless this assertion can be disproved you must admit that the study of that science need not form part of a pharmacist's education. No doubt t is very interesting and highly instructive and cultivating to the mind, but so are astronomy, anatomy, physiology, and other branches of the great domain of natural science, which nobody deems necessary to force upon us. In private conversation on this subject, I have met with the reply that many chemists in country districts collect or cause to be collected some of the leaves, roots, etc., used in pharmacy from plants growing in their neighbourhood such as digitalis, conium, valerian, and others, and that they could not do this without being able to recognise those plants. This is very true; and although by far the greater number of chemists do not collect and dig, but purchase their drugs in the dried state as well as the narcotic extracts made from the fresh herbs, I should be the last to dispute the desirability of homists and druggists knowing the indigenous plants of he British Pharmacopœia. But there is a vast difference between being able to recognise a few dozen fresh plants and possessing an intimate knowledge of structural and systematic botany. Upon drying parts of fresh plants such as henbane leaves, for instance, their appearance changes so that the shape and other characteristics of the fresh articles furnish no description of the substances in the dried state, in which only they can be kept by us. For the latter we are dependent upon our knowledge of materia medica, and students of this science cannot be too strongly recommended to avail themselves of a good collection of specimens as supplied by several wholesale houses. But though I feel persuaded that the study of botany is not needed by our young men for the purposes of their profession, I do not forget that it is required in the minor and major examinations, and must therefore advise them not to neglect it, but to make themselves familiar with the organs of plants and their functions, but above all, with the characteristic features of the indigenous medicinal plants. Here, as in the study of materia medica, specimens are very useful, and collections of dried plants as well as coloured plates of the fresh ones are of great service. If the pupil has the chance or opportunity, he should get up an herbarium by collecting and drying his own plants.

The fourth subject which requires the attention of our pupils, is called pharmacy, and comprises the English and French systems of weights and measure; the antidotes for poisons, the methods of making tinctures, extracts, emulsions, etc., the strength of some important solutions, and compound preparations, and the reading of physicians' prescriptions, in fact, all those details of pharmaceutical knowledge which cannot exactly be treated under the heads of Chemistry and Materia Medica. With the aid of his employer or teacher, the student can easily collect the requisite information from the Pharmacopœia, from the copy-book for prescriptions, and from his own practical occupation.

Some apprentices commit a great mistake in devoting the first year to the study of one science—say Chemistry only—then taking Materia Medica in the next, and perhaps Botany and Pharmacy in the third year. In this way, they will probably forget during the second or third year what they have learnt during the first. They will work best by following the plan almost universally adopted in schools, by devoting a certain time, say about two hours per week to each subject, thus going through them all within the same period, and in that case the student will find that the facts of one science will help him to understand those of the others, and *vice versâ*.

From the question of pharmaceutical education, let us now turn our attention to the tribunals of Bloomsbury-square, London, and Prince's-street, Edinburgh, whose judgment has to decide whether our student's labours have ended in success or failure. First of all, let us bear in mind that the only legitimate object of pharmaceutical examinations is, or at least ought to be, to ascertain whether a candidate presenting himself, is competent or not, to perform the important functions of a chemist and druggist, to admit to the rank and privileges of our profession all who are qualified for its duties, and to reject and exclude those whose shortcomings make them really unfit for the position which they aspire to fill. Hence it follows, that in the minor examination, at any rate, nothing should be demanded or insisted upon with which a thoroughly qualified chemist can well dispense, whilst such knowledge, as is by no means essential, but which may be considered desirable or useful for us (in our capacity as chemists of course) might be expected in the major examination. Let us now see whether these examinations are conducted with sufficient ability and fairness to ensure the attainment of the results alluded to. As a teacher of pharmacy, I have felt deeply interested in this important question, and have collected as many and as full reports as I could of the details of the minor and major examinations (chiefly of the former), both from successful and rejected candidates. You all know that not unfrequently able and thoroughly well qualified men fail, and that others, though quite incompetent, succeed. From my own experience, I can state that young men upon whom I had every reason to look as ornaments of our profession, who had worked hard and earnestly, and whose knowledge and abilities ought to have carried them through the major with honours, have been rejected in the minor and even in the modified examination. Such, I am ready to admit, are rare exceptions, though exceptions of a kind which ought never to occur, whilst instances in which candidates of lesser pretensions but in every respect amply qualified for their duties have met with the same fate, are far more common. In the face of such facts, it is, I believe, the duty of all chemists and druggists to understand the causes of the many unnecessary failures, and to exert themselves individually, and as a body to remove those causes by demanding a reform of the present system of examinations. That something is wrong, is felt by almost everybody who is interested in the matter, for nobody can bring himself to believe in the real unfitness for their position of so great a number of men as are annually turned back; and I will now endeavour to show what there is wrong.

In forming our judgment on this important point, we must receive with due caution the reports of unsuccessful candidates, who are often disposed to conceal or to mitigate their own shortcomings, and to find fault with the examiners. What they tell us of their own nervousness, and how this was increased by the examiners' harshness, cannot be generally considered as impartial accounts, and though there is little doubt that in many instances some of the examiners have failed to remove the excitement and temporary confusion of nervous candidates when they could have done so, and that in some cases that excited state of mind has actually been augmented by uncalled-for harshness and impatience, yet there is evidence enough to show that the majority of the examiners have not neglected their duty in this respect. Therefore I do not believe that many of the failures alluded to can be attributed to nervousness. Neither can I share the opinion entertained by many, that luck has a great deal to do with success or failure in our examinations; not that I dispute altogether that luck or ill-luck has a little influence on the place which a successful candidate's name will occupy in the list arranged according to the order of merit, or that now and then a man who is hardly qualified may pass by mere luck. But surely the many undeserved failures referred to cannot be explained in this way, unless we want to charge the examiners with utter imbecility. Partiality on the part of the gentlemen of whom the boards of London and Edinburgh are composed, is altogether out of the question. We are thus driven to seek an answer to our inquiry in the nature of the subjects on which a knowledge is demanded from our young men.

I have already stated my opinion on the relative value of the different scientific subjects for the purposes of a chemist and druggist; and, so far as my experience goes, I can say that our young men share the views I have expressed, especially with reference to botany. They feel that a subject is forced upon them which they regard as useless, and with the exception of a few who take a special liking to it, they study it with reluctance; the result is that they will not, as a rule, acquire much real knowledge on botany, and that a portion of their valuable time is wasted which might be advantageously devoted to the important study of chemistry and Materia Medica. But, unfortunately, botany is by no means the only unnecessary and undesirable topic required by our present examiners. A great deal of what they ask on the other subjects, and especially on pharmacy, deserves to be called worse than useless. The candidates are expected to know by heart the component parts of the compound powders, confections, pills, mixtures, and other preparations of the Pharmacopœia, and to be able to mention the preparations for which any given substance—as aloes, acacia, and the like are used. The practical experience of men who have served behind the counter for many years will, no doubt, enable them to mention a good many such details if at leisure for reflecting, but to recite them well in an examination where the answers must be given as soon as the questions are asked, necessitates the learning off by heart the greater part of the Pharmacopœia, especially on the part of those who wish to pass before they have served as assistants. This is certainly not learning, but cramming, and the examiners who compel the students to waste their time in such a manner incur the responsibility of encouraging this cramming process so distasteful to a thinking and intelligent student. What can be the use of such knowledge, if knowledge it dare be called? Are our assistants to make the compound preparations from memory, without consulting the Pharmacopœia? I have, of course, nothing to say against candidates being required to know the proportion of poisonous ingredients, such as opium, in preparations used internally (not in plasters, ointments, etc.), but the subjects above alluded to serve no practical purpose whatever; they are worked up by the student, so that he may know them on the day of the examination, no matter how soon afterwards they are forgotten. From my own experience as a teacher, I can state that stupid and unreflecting pupils are generally most inclined and ready to get up this kind of knowledge, which requires no thought, whilst intelligent students, who are eager to collect useful information and true lasting knowledge, detest the practice of cramming.

The remarks I have made on this point are applicable also to the custom of requiring our young men to recognise extracts and tinctures. The recognition of the former is to a great extent guess-work, and though a student may succeed by several days' practice in knowing, or rather in guessing, most of the extracts of his own collection for the time being, he would fail to do so with the extracts belonging to somebody else. As to the tinctures, I admit that about two dozen of them can be recognised by their odour, but a cold may at any time deprive us of the sense of smell, and even without a cold the most experienced chemist may easily fail to recognise an important tincture if he is compelled to exert his nasal organ by smelling a number of strong tinctures in succession. Nothing of the kind is required in the pharmaceutical examination on the Continent; and it seems most ridiculous that the success of our young men should be endangered or lessened by such an incident as a cold. The inability to recognise tinctures and extracts has proved fatal to many a student, especially in the modified examination, in which a candidate is not afforded the chance to show his scientific attainments, though they may be more than sufficient for the major, as the very subjects against which I have so strongly protested form the principal requirements of the modified examination. In the minor there is some chance for the candidates to make up for their apparent deficiency by a display of real scientific knowledge, though even in this examination cases have occurred in which such attainments, great though they were, have not saved them from the fatal consequences of their shortcomings in cramming, guessing, and smelling. I understand that the compositions of the compound preparations of the Pharmacopœia, and the recognition of tinctures and extracts, have not been so much insisted upon within the last twelve months as formerly, and that candidates who fail in these subjects may yet pass the minor examination; but they must look for their names at the bottom of the list. That, gentlemen, is no improvement at all. The most skilful dispenser, provided with more than ample knowledge on chemistry and Materia Medica, will still fail in the modified minor or major examination, if he has not made himself acquainted with those subjects, which any unbiassed man must admit to be utterly useless for him. Botany, though useless, is at any rate interesting, but can the same be said of the other topics, against which I have spoken? It matters little whether or not these obnoxious requirements are less insisted upon now than before; what we want and what we have a right to demand, is to see them excluded from the examinations. They are an intolerable burden to intelligent candidates, and certainly reflect no credit on the examiners. For reasons already explained the omission of botany, too, appears to me highly desirable.

There is yet another subject which I feel sure ought to be excluded from the examination, viz., dispensing. An examiner cannot possibly judge of a dispenser's abilities by seeing him prepare a single prescription. Many clever men are rather awkward in the manipulations when they are being watched, and more particularly so, when they work in a strange place and are being watched by an examiner. A slight mishap or accident may thus cause an experienced dispenser to appear deficient, whilst a far less qualified candidate possessed of plenty of self-confidence will probably pass excellently. We generally find the most ignorant to have the highest opinions of themselves, and to be the least nervous, and the most plucky. No sensible chemist would ever think of forming a correct estimate of the qualification or disqualification of a newly-engaged assistant by seeing him dispense the first prescription. Is it likely then that an examiner should be able to do so? The reading of prescriptions and the detection of errors and overdoses forms a part—a very legitimate one, I think—of the examinations, and if the candidates were asked to explain how they would dispense the prescriptions placed before them, their knowledge of dispensing would be put to as fair a test as an examination can afford. The Latin directions of those prescriptions ought to be such as a dispenser commonly meets with in his occupation. The members of the medical profession are beginning to use plain full English directions in place of the less distinct Latin abbreviations in which one letter frequently stands for a whole word, the same letter sometimes used for two or three different words, and I believe the time is fast approaching in which the English language alone will be employed for the directions on English prescriptions, as some of the directions which candidates have to read and translate in the modified and minor examinations are of a most uncommon kind, and contain terms which our young men never meet with in the prescriptions they are daily dispensing.

I trust I have succeeded in pointing out the main causes which lead to the failure of many well qualified men in the pharmaceutical examinations, and in throwing some light on the success of others who do not deserve to pass. Among the latter there are many who are crammed up, not only in those subjects in which the crammed student must have very great advantages over all others, but also in the legitimate and scientific requirements. I am in a position to state that men who had learnt off by heart about 500 answers to 500 questions, such as they knew were generally asked in the minor examinations have passed after a course of six or eight week's cramming Such facts have oozed out, and the examiners, I understand, are determined to prevent such candidates from passing in future, by making the examinations more difficult still. If this be really true, it is clear that they admit their having hitherto been imposed upon by crammed and ignorant men. Nothing, indeed, could exceed the admirable candour of this admission.

Need anyone tell you that any competent examiner ought to be able to distinguish between real knowledge and superficial cramming, without making the examinations more stringent than they have been?

In drawing to a close, I feel persuaded that you will all heartily share my conviction of the necessity of a thorough reform in the present system of examinations. If such important cities as Manchester and Liverpool are denied the privilege of local examinations, and if our young men are put to the expense of presenting themselves in London or Edinburgh, we are doubly entitled to demand that the examinations shall be conducted in such a manner as to draw a fair line of distinction between qualified and non-qualified candidates, so that a chemist who is fully competent for all his duties may not be rejected, but that his name will occupy the deserved place in the list of the successful.

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Short Weights.—At the Brierley Hill Police-court, the other day, Mr John Rawlings, chemist, High-street, was charged with having five small weights which were deficient. The inspector said they were brass weights, and he would admit that they appeared to have been rubbed a great deal, and by that means the deficiency might have been occasioned. He also admitted that the whole of the weights at another shop of the defendant were just. Mr. Clulow defended, and said that his client, who was one of the most intelligent and esteemed men in that locality, was utterly unconscious that the weights were deficient, and he could only account for it by their having been rubbed a great deal, as suggested by Mr. Horder, or by assistants having spilt acids upon them. The stipendiary remarked that the defendant being an intelligent man rendered it less excusable that he should have neglected to observe the law, by sending the weights to be adjusted. He would, however, say that he believed it to be only an act of neglect and not of fraud, but for that neglect he would be fined £5 and costs.—The Middlesex magistrates have fined Mr. W. Waman, chemist, of 147, Mare-street, Hackney, 10s. for an infringement of the Weights and Measures Act; and the magistrates, in inflicting the fine, said they sat to administer justice impartially, and although the defendant was moving in a different sphere from that of the persons ordinarily fined under this Act, they could not recognise any difference in the extent of his culpability.

## Medical Gleanings.

SELDOM in our review of medical history has it been our pleasure to chronicle anything so satisfactory as the following declaration, which has been signed by nearly three hundred physicians and surgeons, each one of whom holds some official or representative position. The list of names commences with the presidents of the Royal Colleges of Physicians and Surgeons and of the General Medical Council and includes most of the eminent men connected with metropolitan and provincial hospitals and infirmaries. It is a sign of the times and a very hopeful one. The declaration runs thus:—"As it is believed that the inconsiderate prescription of large quantities of alcoholic liquids by medical men for their patients has given rise, in many instances, to the formation of intemperate habits, the undersigned, while unable to abandon the use of alcohol in the treatment of certain cases of disease, are yet of opinion that no medical practitioner should prescribe it without a sense of grave responsibility. They believe that alcohol, in whatever form, should be prescribed with as much care as any powerful drug, and that the directions for its use should be so framed as not to be interpreted as a sanction for excess, or necessarily for the continuance of its use when the occasion is past. They are also of opinion that many people immensely exaggerate the value of alcohol as an article of diet, and since no class of men see so much of its ill effects, and possess such power to restrain its abuse, as members of their own profession, they hold that every medical practitioner is bound to exert his utmost influence to inculcate habits of great moderation in the use of alcoholic liquids. Being also firmly convinced that the great amount of drinking of alcoholic liquors among the working classes of this country is one of the greatest evils of the day, destroying—more than anything else—the health, happiness, and welfare of those classes, and neutralising, to a large extent, the great industrial prosperity which Providence has placed within the reach of this nation, the undersigned would gladly support any wise legislation which would tend to restrict, within proper limits, the use of alcoholic beverages and gradually introduce habits of intemperance."

Dr. Lionel S. Beale, Dr. Gull, Mr. F. C. Skey and a few others, have intimated in the public or medical journals, the reasons of the absence of their signatures. Their excuses are very lame indeed, and the appearance of their letters is, itself a tribute to the weighty influence of the document, the above-named gentlemen doubtless, observing that the list of signatures was so respectable that they could not afford that theirs should be absent without explanation. This is an encouraging step in advance, towards the successful issue of the Licensing Bill campaign which has now commenced.

Such a sentence as the following could never have appeared except in a medical journal; it is "just like Roger:"—"At this moment, when there is an exhibition of national gratitude towards the medical attendants of the Prince of Wales, the consideration of the honours accorded to medical men is certainly not out of place." The superintendence of the Prince's life and health was accorded to Providence readily enough when everyone, doctors included, anticipated his death; but medical men no less readily intercept all the national gratitude now that "things have took a turn." But it is surely to be regretted that the recovery of the Prince of Wales should be made the occasion of some of those greedy demands whereby the medical profession has so often previously disgusted the public. Scarcely is the sufferer out of danger than the *Lancet*, assuming to speak for "high quarters," demands a baronetcy for Dr. Gull as a matter of course, a peerage for Sir William Jenner, and "that Dr. Gream and Dr. Arthur Farre should receive proper recognition for their important services rendered to the Royal Family here and abroad, and to the public at large. If a baronetcy is to be created in reference to the illness of the Prince of Wales, the popularity of it will be greatly enhanced if it is not a single creation; for, in equity, a new servant of the Royal Family, however great his services, ought not to supersede those who have served them for years before." The obtuse prime minister may wonder why on earth he should be called upon to give "proper recognition" to Dr. Gream and Dr. Arthur Farre ust at this time. They had no more to do with curing H.R.H. than had Mr. Jones, the humble country practitioner, who went on all the while, doing his duty to the best of his ability just as they did, and who consequently has exactly the same claim as they to a baronetcy, or whatever may be "proper recognition." But the authorities will be good enough to waste no time in asking questions. According to the writer of this extremely impudent article, "the bestowal of honours to the profession at this moment will be complimentary in exact proportion as it is speedy." Modesty is inconvenient sometimes, but the *Lancet* "cannot, further, avoid expressing a hope that a proper recognition of his services and his position awaits the President of the College of Physicians at no distant date."

That Dr. Gull will be made a baronet is fairly certain, and as he is not by any means an old man, it may be hoped and expected that he will long enjoy his dignity and its substantial results. His success in his profession has been rapid, and before he was called to the royal bedside he was almost, if not quite, the most popular consulting physician in London. Young doctors who want to rise in their profession might invest a guinea worse than by spending it with Dr. Gull. In him they would see the most perfect cultivation of the manner which unquestionably most pleases the guinea-spending public. Dr. Gull never makes light of his visitors' ailments; never assumes the tone or manner of a genial physician. In another profession he would have worthily filled the office of Newgate chaplain, but in medicine the same solemn thoughtfulness has borne him higher. We by no means depreciate Dr. Gull's unquestionably great skill as a physician, we simply recommend to aspiring prescribers the study of this one great accomplishment. We say Dr. Gull is fairly certain to be made a baronet; and doubtless he will be happy in consequence. Why that should make him so it would be difficult to explain, for essentially the honour is much the same as if the Queen should authorise him to change his name from William to Thomas. In this old world, though sentiment still counts for something, and so long as the title is guarded with any degree of jealousy, it will be valued and sought for.

## NATHANIEL HECKFORD.

SCARCELY known to fame, for he himself never sought "the bubble reputation," the gentleman whose name heads this article and who died on the 14th December last, leaves behind him a sorrowful circle of humble and grateful friends, and a memory so bright and pure that its dazzling beauty almost eclipses the dark sad thought of his early death. The following sketch from the pen of Charles Dickens may not be unfamiliar to many of our readers; but they will attach a new interest to it now that the hero of the story has finished his noble self-sacrificing labours.

"Down by the river's bank in Ratcliffe, I was turning upward by a side street to regain the railway, when my eyes rested on the inscription across the road, "East London Children's Hospital." I could scarcely have seen an inscription better suited to my frame of mind, and I went across and went straight in. I found the Children's Hospital established in an old sail-loft or storehouse, of the roughest nature, and on the simplest means. There were trap-doors in the floors where goods had been hoisted up and down; heavy feet and heavy weights had started every knot in the well-trodden planking; inconvenient bulks and beams and awkward staircases perplexed my passage though the wards. But I found it airy, sweet, and clean. In its seven-and-thirty beds I saw but little beauty, for starvation in the second or third generation takes a pinched look; but I saw the sufferings both of infancy and childhood tenderly assuaged, I heard the little patients answering to pet playful names, the light touch of a delicate lady laid bare the wasted sticks of arms for me to pity; and the claw-like little hands, as she did so, twined themselves lovingly around her wedding-ring. One baby mite there was, as pretty as any of Raphael's angels. The tiny head was bandaged, for water on the brain, and it was suffering with acute bronchitis too, and made from time to time a plaintive, though not impatient or complaining little sound. The smooth curve of the cheeks and of the chin was faultless in its condensation of infantine beauty, and the large bright eyes were most lovely. It happened as I stopped at the foot of the bed that those eyes rested upon mine, with that wistful expression of wondering thoughtfulness which we all know sometimes in very little children. They remained fixed on mine, and never turned from me while I stood there. When the utterance of that plaintive sound shook the little form, the gaze still remained unchanged. I felt as though the child implored me to tell the story of the little hospital in which it was sheltered, to any gentle heart I could address. Laying my world-worn hand upon the little unmarked clasped hand at the chin, I gave it a silent promise that I would do so. A gentleman and lady, a young husband and wife, have bought and fitted up this building for its present noble use, and have quietly settled themselves in it as its medical officers and directors. Both have had considerable practical experience of medicine and surgery; he, as house-surgeon of a great London hospital; she, as a very earnest student, tested by severe examination, and also as a nurse of the sick poor, during the prevalence of cholera. With every qualification to lure them away, with youth and accomplishments and tastes and habits that can have no response in any breast near them, close begirt by every repulsive circumstance inseparable from such a neighbourhood, there they dwell. They live in the hospital itself, and their rooms are on its first floor. Sitting at their dinner table they could hear the cry of one of the children in pain. The lady's piano, drawing materials, books, and other such evidences of refinement, are as much a part of the rough place as the iron bedsteads of the little patients; they are put to shifts for room, like passengers on board ship. The dispenser of medicines (attracted to them, not by self-interest, but by their own magnetism and that of their cause) sleeps in a recess in the dining-room, and has his washing apparatus in the side-board."

The young husband and wife who are so respectfully alluded to in the sketch we have quoted were Mr. and Mrs. Nathaniel Heckford, who were the founders and sustainers of this hospital for children. Mr. Heckford was born at Calcutta in 1842, and in 1857 he came to England to prepare for the medical profession. He was apprenticed to Dr. A. Banks, of Stratford; and two years afterwards he entered as a pupil at the London Hospital. During his student career, he gained successively the old medals in surgery and in medicine, and filled the posts of Resident Accoucheur, House-Surgeon, and Medical Registrar and Tutor, acting also on several occasions as House-Physician. He held also for a short time the House-Surgeoncy of the Metropolitan Free Hospital.

When cholera broke out in 1866, he worked both night and day in the newly opened Cholera Hospital at Wapping, then under the care of his friend and fellow-student, Dr. Bathurst Woodman, displaying much singleness of heart and intelligent energy. Soon after the hospital was closed, he went back to India for a time, and returned in charge of troops. On leaving for India his fellow-students at the London Hospital presented him with a silver cup as a token of their esteem. In January 1867, Mr. Heckford was married to Miss Sarah Goff, who had acted as one of the lady-nurses at the Wapping Hospital; and on the first anniversary of their marriage, they founded and took up their abode in the East London Hospital for Children, the scene of their future devoted and romantic labours. The hospital building was an old warehouse hard by the bank of the river, and situated in one of the most wretched neighbourhoods of the East End. They purchased the old building for £2,000, the freehold of which they presented to the hospital committee last year. At first, the young couple commenced their work of love with ten beds, the entire cost of maintenance being defrayed through their liberality. But with the assistance of a few gentlemen—the Rev. Mr. Burnall, of Wapping, the Rev. Mr. Atherton, and others—a committee was formed, and funds were raised which soon enabled them to increase the benefits of the institution and open thirty-seven beds, and now a large new hospital is about to be commenced.

Mr. Heckford's devoted labours at the little hospital and in the surrounding neighbourhood laid the foundation of that pulmonary disease which two brief visits to Italy, shortened by his intense love of his hospital only, relieved for a time, and which eventually carried him off suddenly.

His death occurred at Ramsgate, but he was buried in Woking Cemetery, and crowds of poor people who had known and loved him in life, paid the last silent tribute to his memory as they stood around his open grave.

Though most of his time was given to the hospital, Mr. Hockford also practised privately. But all the fees he received were devoted to the hospital. He published several papers of merit in the "London Hospital Reports," and latterly acted as Secretary to the Beaumont Society. His life, though short, was longer than that of most men if reckoned by deeds of true Christian charity.

There are many other men and women in this great city whose life-work is as noble and as unselfish as was that of Mr. Heckford; but such instances are at least rare enough to be worthy of special note, He followed closely in the steps of Him whom we call the Great Physician, and his name is enrolled for ever in Heaven's stainless Legion of Honour.*

## MEDICINE AND PHARMACY.

MEDICINE and pharmacy are two professions as distinct as they are united; one cannot exist without the other; they are married together—the two make one. We do not advance any new theory, we do not wish to advocate Mr. Mill's doctrine of sexual *egalité*, but to show how each, separately and together, each in its own sphere, should combine their functions for mutual benefit. In this marital union medicine is the authoritative head, and requires, for the well-being of the social contract, an implicit, loving, and intelligent submission on the part of pharmacy. The general orders belong to medicine—it rests with pharmacy to attend to the details, and although they may seem at first sight less grandiose, they are none the less important. But as, in domestic matters, a wide field is left for discriminating judgment, so the confidence reposed in us is frequently exemplified in prescriptions by the familiar q.s. We have often seen bismuth ordered in a mixture with mucilage, or gum q.s.; and we have also been censured by both patient and doctor, when the latter has ordered just sufficient gum to form a cakey mass at the bottom of the bottle. In making pills too the excipient or its quantity is often left to our judgment. This shows how essential a good pharmaceutical education is, if even this little be left to our discrimination. Pharmacy has no ambition to overstep her functions, in fact, they have not yet been thoroughly conceded; and to get them, we must win everywhere, and in every way, the love and respect of the medical profession—we must show them that it is essential to their own; and to their patients' welfare to employ us.

We strive to be honest—to merit true approbation through education. We are essentially a self-educated class, no one has patronized us—all our educational machinery is of our own construction. If it was weak at first, it is strong now, and is growing stronger, and ten years hence we shall see pharmacists as much consulted in their domestic circle, on the construction of an obscure line in Horace or Virgil, as they are now on excipients for pills, or incompatible mixtures. We are striving hard, through much opposition, to become recognised, solely through our professional and scientific education, as the only qualified dispensers of medicines, and we merit this recognition. Why should a surgeon, whose opportunities as a student are practically as nothing compared with our special education and practice in handling and dispensing medicines, be permitted to usurp our functions? This tyrannical abuse has long since been remedied on the Continent. There the two professions are absolutely distinct. "Les docteurs ordonnent, les pharmaciens préparent." In Paris there are some forty doctors of medicine practising pharmacy—but then, *they are forbidden to practise medicine*. There the professional status of pharmacy has been elevated to such a standard that men of talent, like Drs. Mialhe, Grassi, etc., prefer, as scientific men, and as being more lucrative, the minor duties of pharmacy; and their co-operation is most beneficial, not by any means lowering them in the social scale, but elevating pharmacy to its rightful dignity. Now that legal guarantees qualify all future pharmacists as educated men, it is time that we should enjoy the fruits of our labours, by securing the monopoly of our business. It is unjust, and we say it advisedly, that after a long course of study, and a considerable outlay, the diploma licensing us to dispense, permits our neighbour to keep an open shop, and dispense not only his own prescriptions, but those to which we, as qualified pharmacists, have an undoubted right; whereas, he, the jackal of both medicine and pharmacy, creeps in, and filches a dishonest gain from both. This anomaly must be one day abolished, and now that our status is legally recognised, we must endeavour to secure our patent and palpable rights, and compel all dispensers of medicine to provide themselves with the proper diploma, to the exclusion of all others.

It is of no use to enunciate a grief without indicating some practical mode of redress. Can we not, during the next session of Parliament, induce some cloud-compelling Zeus, such as our friendly advocate, Lord Granville, to introduce a bill, prohibiting the dispensing of medicines by others than diplomated pharmacists. Such a bill, would, it is true, but partially vindicate our rights, but it would be a step in the right direction, and as such would deserve the support of all interested in the welfare of pharmacy.

The present state of affairs is disgraceful to a practical nation. As an Englishman, I was ashamed to attempt to explain to a French doctor such an absurd injustice as to force pharmacists to pass severe examinations, and then refuse them the monopoly of their calling. Let us unite in endeavouring by legal means to remedy this abnormal wrong, and by our intelligence, education, and moderation, gain our rights, and win the love and respect of all.

[The writer of the foregoing article is a pharmaceutical chemist, and we well know that he expresses the views of many others in the trade. It is very much to be hoped that the wretched system of open surgeries will some day die away; and we can quite see that its dissolution will be a benefit to the medical and pharmaceutical professions, and to the public. But we cannot admit that the ugliness of an object is sufficient justification of its murder, nor do we consider that the course of agitation suggested by the writer would be the most likely way to "win the love and respect" of the medical profession.—ED. *C & D.*]

SEVERE REMARKS FROM A CORONER.—An inquest was held on December 22nd on a little boy three years old, before Mr. Richards, deputy coroner for East Middlesex. The child's mother gave the following evidence:—"The deceased was taken ill on Monday last with a severe fit of coughing and choking, and I took him to 'the Hall,' in Goldsmith's-row. I was there told that he was suffering from hooping-cough, and I obtained from the doctor there a bottle of physic to induce vomiting, for which I paid. They painted the deceased on the chest, throat, and back, and I took him home and gave him some of the medicine, but he was not at all sick. On Tuesday he ate his dinner, but appeared sleepy afterwards, and at six o'clock that evening was seized with a fit of choking. My husband took him to Dr. Bryant, but he died ten minutes after that gentleman saw him. The people in Goldsmith's-row promised to give me a certificate to enable me to bury the deceased, but somehow it was stopped, although it had been written out." Dr. Bryant said that the child presented no sign of hooping-cough. He died from croup, and if any proper medical man had been called in he had not the least doubt that the child would have been alive. The coroner, referring to these observations, said:—"The extent to which chemists infringe the provisions of the Act is something frightful, having regard to the fact that the lives of so many persons are annually sacrificed through the ignorance of these unqualified medical practitioners. The consequence is that at the last moment a real doctor is called in, and he refuses to certify, the result being a coroner's inquiry and the waste of the county money. The want of a public prosecutor is here most manifest; but until this crying evil becomes thoroughly exposed through the medium of the public press, we may look in vain for any proper measures being taken to check the frauds which are daily perpetrated upon the true medical profession by men who know as much of the human anatomy as my inkstand."

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* We desire to acknowledge that we are indebted to the *British Medical ournal* for the facts of Mr. Heckford's life.

## THE ESTIMATION OF MORPHIA IN OPIUM.

A VALUABLE paper on the above subject was contributed to the December meeting of the Pharmaceutical Society.

Mr. MILLER commenced by remarking that an easy, accurate, and precise morphiometric method was still a desideratum, for he thought the process of the British Pharmacopœia both tedious and uncertain. The process proposed by Mr. Miller was based on the reduction of iodic acid by morphia. As many other organic bodies also reduce iodic acid, but not so readily as does morphia, it was necessary to find some means of distinguishing, with sufficient sharpness, their effect from that due to morphia. The plan adopted by Mr. Miller was to wash out the liberated iodine with carbon disulphide, and compare its colour with a standard solution of known strength, and prepared in a similar manner. The last step was to equalise the colours by the addition of carbon disulphide to the darkest. After detailing the partially successful results of his first attempts, Mr. Miller gave the following as the directions for proceeding to apply this test satisfactorily.

*Apparatus.*—Three strong tubes of colourless glass, like ordinary test-tubes in form, about eight inches in length and of exactly equal bore, which should be about half an inch. At first I used graduated tubes, but afterwards found it better to employ separate measures of smaller calibre, viz., a pipette to deliver 100 grain-measures; a tube-measure for 50 and 100 grain measures; and a smaller one for 5, 7·5 and 10 grain measures.

*Standard Solution of Morphia.*—Weigh off accurately one grain of pure and well-dried morphia, and dissolve it in 50 grain-measures of diluted sulphuric acid, B.P., and sufficient distilled water to make the volume exactly 1,000 grain measures. This solution will keep without appreciable change for some weeks.

*Solution of Iodic Acid.*—Place in a flask 100 grains of iodine, 100 grains of potassium chlorate, 1 fluid-drachm of strong nitric acid and 2 ounces of water. Heat the mixture until the iodine is perfectly oxidized; nearly neutralize with sodium carbonate, then add an excess of solution of barium chloride. Wash the barium iodate by decantation, and boil it for half an hour with a fluid-drachm of strong sulphuric acid and 3 ounces water. When cold, filter and add water to make the bulk 6 fluid-ounces.

*Sample Solution.*—If the opium is in the moist state, dry 100 grains on the water-bath, and after noting the loss in weight reduce it to *fine* powder. Put 20 grains of the powder into a two-ounce flask with one grain of oxalic acid and half a fluid-ounce of alcohol, sp. gr. 0·838, and having attached a condensing-tube to the flask, place the lower part of the latter in water hot enough to cause the spirit to boil gently, and continue the boiling for half an hour. Filter into a porcelain dish, and wash the residue with half a fluid-ounce of hot spirit. Add to the filtrate half an ounce of water, and evaporate down to about a quarter of an ounce, stirring frequently, then add an ounce of cold water. After the mixture has stood for ten minutes or so, remove the precipitated resinoid matter by the filter, and wash it with a little cold water, adding the washings to the filtrate. Boil the latter with 10 grains of slaked lime for two or three minutes, filter, and wash the calcium compounds with hot water. Slightly acidulate the filtrate with solution of oxalic acid, and evaporate it down to about a fluid-ounce. After cooling, add 12 grains of caustic potash and set aside for a quarter of an hour; then filter, and wash the precipitate with a drachm of liquor potassæ, diluted with two or three times as much water. Divide the filtrate into two exactly equal portions: pour one of these into a 1,000-grain measure, add 100 grain-measures of diluted sulphuric acid, B.P., and water up to the mark, and mix well. Finally shake the small quantity of solution required for the experiment—about half an ounce—with a fourth of its bulk of carbon disulphide, and pass it through a filter.

*The Experiment.*—Measure off with the pipette 100 grain-measures of the sample solution, and transfer it to one of the trial tubes. Add 100 grain-measures of carbon disulphide, and lastly, fifty grain-measures of iodic acid solution; then immediately close the tube with a sound cork and shake briskly for *half a minute*. The rose-coloured solution of iodine quickly subsides, but its brightness is sometimes rather obscured by a slight filmy deposit on the glass. In this case pour the contents of the tube into a clean one. Take next 100 grain-measures of the standard solution of morphia, and using a fresh tube, repeat the operation just described. Compare now the two rose-tinted liquids by holding the tubes side by side between the eye and a white cloud, or placing them against thin white paper attached to a window-pane. If the colours are equal in intensity, the powdered sample contains ten per cent. of morphia. If unequal, add to the deeper one carbon disulphide in small successive measured quantities—say of five or ten grain-measures at a time, as may seem necessary,—gently mixing it in with a glass rod. When by this means the tints have been rendered equal in depth, the calculation is simple.

Let $v$ = volume in grain-measures of standard colour;
Let $v'$ = volume in grain-measures of sample colour;
then $\frac{v' \times 10}{v} = x =$ percentage of morphia in powdered sample.

And if $w$ = percentage loss of weight in drying, then $\frac{(100 - w) \times x}{100} =$ percentage of morphia in moist sample.

*Precaution.*—The carbon disulphide used must remain colourless when shaken with solution of iodic acid.

A discussion followed the reading of this paper, in which Professors Redwood and Attfield, Dr. Tilden, Mr. Groves, and Mr. Allchin took part. Dr. Redwood pointed out that the removal of the iodine from the solution to be tested, however quickly it might be accomplished, gave to the process the character of a race between two reactions. He feared that this objection rendered Mr. Miller's process uncertain.

## THE ADULTERATION AND DETERIORATION OF DRUGS.

[*The following paper was read at two recent meetings of the Glasgow Chemists' and Druggists' Association, by Mr. J. L. McMillan.*]

THE subject that I am about to introduce to you this evening is one of the most vexed of all vexed subjects. Few subjects have received so much attention, or excited so much popular interest; few subjects have been so alarmingly and nonsensically exaggerated as this one subject, the "bane of all commerce"—adulteration.

My object in introducing such subject is with no views or pretensions to the remedy of the evil, but merely to add to a long list of expositions, the extent to which spurious drugs are offered for sale in this city. The topics of our inquiry being numerous, I have divided our subject into two parts. First, on the adulteration of drugs; second, on the deterioration of drugs.

The existence of spurious drugs in the market is an everyday occurrence. The extent to which such abuses prevail can never be correctly determined. However, they by far exceed the limits of mere accident. It is useless for me to enumerate the various adulterations to which drugs are liable. In fact, I feel perfectly incapable of demonstrating even the hundredth part of the extent of this evil; suffice it to say you are "systematically robbed," and are yourselves to blame.

Every pharmacist ought to be able to take to pieces every article, and the products of such article, used in pharmacy, and satisfy himself as to its purity. By such means only can we ensure the progress of the sciences of medicine and pharmacy, and do justice to ourselves and to the public. In fact, the whole system of adulteration is so well devised that it is almost impossible, without a knowledge of analysis, for the pharmacist and wholesale dealer not to be imposed upon. It is a general system, beginning in the metropolis and extending over the whole country. I say beginning in the metropolis, for I thoroughly believe that drugs are not to any alarming extent wilfully adulterated by the producers.

Even though drugs are found to be impure directly they are imported, we must consider how such impurities found their way into the articles. In other words, every sample of a substance in which we find one or more substances foreign o it, we must not, when in an indignant state of mind, ascribe to adulterations. Such impurities may have found their way thither either by accident, or by carelessness of the servants of the producers. Assuming such to be the case, it does not constitute a case of adulteration. I would class such under "Impurities, casual or accidental." You will therefore perceive that there is always a doubt which tends to hinder stringent legislation on this increasing evil, adulteration.

I say increasing evil, for I believe that reports of a highly expositionary character finding their way into the public prints or trade journals, show "honest mortals" how to become adepts in the art of sophistication. Nevertheless, the producers are entitled to the benefit of the above-mentioned doubt. But to the producers only should such benefit be extended, and nowise to the wholesale dealer, who, when he assumes or uses such title, should be able to judge, value, and refine accordingly, all articles and products of such articles used in pharmacy, or he should keep a competent judge for the purpose; and if it be proved that he had made sales of spurious drugs, no mercy should be shown him. The first obligation that the experienced pharmacist justly imposes upon the wholesale dealer, is the delivery of drugs, presenting all the external characteristics, which in a commercial point of view distinguish those different products, according to the country which produces them.

This is good as far as it goes, and here our Botany and Materia Medica becomes of use to us. But our botanical knowledge is of use to us only in the discrimination of plants, or of parts of plants, but in no case of the product of plants; *e.g.*, I have here on the table a sample of "Conii Fructus," bought in June last by our Vice-President, Mr. Brodie, as the genuine article; but he (Mr. Brodie) found it to be largely adulterated with the fruit of *Anthriscus vulgaris*, or common beaked parsley, which I may mention, in passing, is highly poisonous. Mr. Brodie showed this specimen to Professor Hennedy, of this University, who pronounced it to be largely adulterated with a number of species of the Umbelliferæ; but, as Mr. Brodie had stated, the fruit of *Anthriscus vulgaris* was most prominent. Such is an example of a drug which we may distinguish by external appearances, and moreover, by availing ourselves of our botanical knowledge, detect impurities. But on the other hand, to show you that our botanical knowledge avails us little as concerns the products of vegetables, take opium as an example. Its external appearance goes for nothing; we cannot judge from appearance, the percentage composition of its different alkaloids: Berthe, the Pharmacien to the hospitals of Paris, has shown it to vary as much as five per cent. From this you will perceive the utility of estimating, or causing an estimate to be made, of the proximate percentage composition of such and similar bodies before purchasing, not only because of the loss likely to be sustained in a pecuniary point of view, but more particularly for the loss likely to be sustained in the progress of the science of medicine.

However great this evil is, I do not think it is really so bad as represented. I have drawn out a list of various articles and preparations procured throughout the city; I have selected such articles as in my opinion are best adapted for illustration, and which are most prone to adulteration.

Throughout my paper I make use of the metrical system of weights and measures for the following reasons:—First because a practical knowledge of such is demanded in the examinations of the Pharmaceutical Society; secondly, because such system is now almost exclusively used by scientific men, both at home and abroad; and thirdly, from my belief that it will become sooner or later, the only system used in Britain. A short definition of such system may be acceptable to many of you.

Prior to the Revolution in 1789, the weight called *Poids de Marc*, the unit of which was the pound of Charlemagne, was that almost exclusively used in France. During the use of such the greatest confusion seems to have prevailed, when at a meeting of the French philosophers they considered that they should invent some natural system of weights and measures; whereupon they agreed that they should measure the earth, and take a definite part as their unit of measure; after surmounting many difficulties, the French geometricians accomplished this object. During the progress of the Revolution, the Government introduced a system prepared by those philosophers. They took a ten-millionth part of a quarter of the meridian of the earth, or a ten-millionth part of the distance from the equator to the pole; this, they said, should be their unit of measure. They called it the "Metre;" this metre they divided into ten parts, each of which part they called a decimetre; this they subdivided into ten parts, each of which they called a centimetre; this they again subdivided into ten parts, each of which they called a millimetre. A cubic decimetre, they said, should be their unit of measure of capacity, which they called the "Litre;" this "Litre" they divided and subdivided similar to the "metre," namely, into deci-, centi-, and milli- "Litres." A cubic centimetre of distilled water at its maximum density, that is to say, at 4° C., they took as their unit of weight, which they called a "Gramme;" this gramme they divided and subdivided similar to the "Metre and Litre," namely, into deci-, centi-, and milligrammes. The Latin numeral adjectives they prefixed to the "Litre, Metre, and Gramme," to denote quantities less than such units. In like manner, the Greek numeral adjectives were prefixed to these respective units to denote the multiple of the units, *e.g.*, ten grammes they called a deca-gramme, 100 grammes a hecto-gramme, 1000 grammes a kilogramme, c.c.

I will now draw your attention to part of a list of various articles I have examined.

*Lime juice.*—The large consumption of this material, and the prices charged throughout the city, led me to believe that, like milk, it oftentimes underwent the process of watering. Indeed, no substance is more open to such abuse; it can stand a good percentage of water without perceptibly diminishing its strength. This, however, I found not to be the case; six samples I examined, and found to vary in the percentage amount of citric acid continued in each, but not to such degree that we could ascribe the variation to adulteration. Genuine juice from Rose's depot should possess a density of 1026·95 at 15·5° C., at which density it usually contains 4·03 per cent. of citric acid. The following is the result of the examination of six different samples procured in the most disreputable places in the city:—

| No. | Density at 15·5° C. | Gram Weight of $H_3C$ in One Hectogram. | Grains Weight in One Fluid ounce. | Equal to Gram Weight in 28·39 c.c. |
|---|---|---|---|---|
| 1 | 1029 97 | 4·15 | 18·209 | 1·18 |
| 2 | 1028·71 | 4·12 | 18·005 | 1·17 |
| 3 | 1026·84 | 4·05 | 17·746 | 1·15 |
| 4 | 1025·34 | 4·01 | 17·592 | 1·14 |
| 5 | 1022·71 | 3·94 | 17·283 | 1·12 |
| 6 | 1021·98 | 3·87 | 16·975 | 1·10 |

*Rectified Spirit*, four samples of which I have examined with the following results:—

| No. | Density at 15·5° C. | Gram Weight of S.V.R., ·825, in One Hectogram. | Overproof. |
|---|---|---|---|
| 1 | ·846 | 90·8 | 52 |
| 2 | ·835 | 95.3 | 57·5 |
| 3 | ·825 | Standard | 63 |
| 4 | ·811 | Over standard | Containing 94·33 per cent. alcohol ·796 |

You will here notice that No. 1 sample contains least spirit; it, in fact, contains nearly 10 per cent. of water, while No. 4 is almost pure alcohol, by far exceeding the strength of that required by the P.B. No. 4 was obtained in a disreputable establishment; No. 1 was obtained in a first-class establishment.

You may determine the percentage amount of pure spirit in any sample from the gravity. This is generally determined by a hydrometer, specially constructed for such purposes. But the most accurate method of taking the sp. gr. of fluids is by the sp. gr. bottle. The method of procedure I will describe. This bottle, you will notice, is fitted with a thermometer; it holds at 15·5° C., or 60° F. 1,000 grains of distilled water. Knowing this, in proceeding to determine the sp. gr. of any fluid, or in other words, to find how much heavier than a known volume of distilled water is a similar volume of any fluid, you first of all counterpoise this bottle on the pan of a small balance. Having done this, you fill the bottle with the fluid, and accurately weigh it, when the mercury in the thermometer stands exactly at 60°, while the weight thus obtained by 1,000, the weight of the water, and you obtain the gravity of the fluid: *e. g.*, supposing that the fluid under examination weighed exactly 825 grains, then $\frac{825}{1000}$ = ·825 the gravity of the fluid. This is the most accurate method of determining the density of fluids; but the hydrometer is most convenient for technical purposes.

*Tinct. Opii.*—This was taken as the best example of such preparations, partly owing to the high price of the crude material, and the enormous demand for it in a pharmaceutical point of view. Three samples which I have examined I found to contain respectively 9·5, 9·6, and 9·8. decigrams of the soluble portion of the opium in 28·39 c.c.; or 14·7, 14·9, and 15·2 grains in one fluidounce, whereas 28·39 c.c., or one fluidounce, should contain 1·4 gram, or 22·8 grains, or in round numbers, 23 grains of extract in one fluidounce, which is equivalent to 2·12 gram, or 32·8 grains of crude opium. The spirit contained in two samples was under proof; the other only contained about 3 ounces to one pint. Examples such as this do not come within the category of adulterations, but under that of a worse heading, namely, fraud and imposition.

Two samples of scammony I found to contain respectively 25 and 18 per cent. of calcium carbonate; this is nothing uncommon. In many cases it has been found in double that quantity. The method of detection is to ignite about five grammes, and add to the ash or residue a small quantity of HCl. + aq., and if carbonates be present effervescence will ensue. You can then apply an appropriate test for the detection of lime.

Two samples of hydrochlorate of morphia, one of Messrs. MacFarlane's, the other of Messrs. Smith's manufacture, I found to be perfectly pure. However, this substance, from its high price, is liable to be adulterated after leaving the hands of the manufacturer.

Two samples of sulphate of quinia, I found also to be perfectly pure, containing not even a trace of cinchonine or analogous substances.

Three samples each of hydrochloric and sulphuric acids I found to be almost chemically pure. Two samples of acetic acid I found to be slightly below the normal strength, but not to such degree as to be imputed to adulteration.

The new year is close at hand; I would advise masters to keep an eye on the sherry. One member has told me that when he had any medicated wines to prepare he used weak spirit, and otherwise disposed of the sherry. If that member be present I hope he will not consider an endeavour to expose the abuses of his profession an officious interference, but rather look upon those as his best friends who take the trouble to remind him of a paramount duty. I will not tax your patience further with details of adulterations, but merely refer in the briefest manner to the advantage to be derived by the practical botanist in determining from their external aspect the genuineness of vegetable drugs. I will give but few examples, but such as I do give are those likely to be brought under your notice.

The roots of gentian are sometimes mixed with belladonna and aconite, very dangerous adulterations, which, however, can be readily detected by one whose eye has been educated to observe the physical characters of roots. On the Continent sarsaparilla is often adulterated with asparagus, and sometimes with the hop; among the roots of serpentaria, we sometimes find those of aristolochia, tomentosa, and *Spigelia marilandica.* The rhizomes of bistort are often mistaken for those of tormentil, an error, however, of little consequence, both possessing the same astringent properties. Canella is often substituted for *Wintera aromatica*, which belongs to a distinct natural order, therefore possessing different properties. From the great resemblance that exists with respect to the leaves of the Umbelliferæ, we find those of *Conium maculatum* confounded with *Æthusa cynapium*, *Cicuta virosa*, or *Myrrhis zemulanta*, and several others. Foxglove leaves collected by the ordinary herb-collectors are seldom free from leaves of verbascum and comfrey. Among the leaflets of senna are found various leaves and leaflets of similar or dissimilar plants, all of which can be readily detected by their forms. Lastly the leaves of *Uva ursi* are mixed with those of cowberry (*Vaccinium vitis idæa*). Among flowers we find those of *Matricularia chamomilla* and *Pyrethrum parthenium*, mixed with and substituted for those of true chamomile (*Anthemis nobilis*). To the eye of the botanist they are easily detected by the absence of the scales that are found between the florets, on the receptacle of the true chamomile. The stigmas of saffron are often adulterated with the florets of marigold, a fraud which is instantly made evident by putting them into hot water, when the difference between a stigma and a ligulate floret is at once recognised by any one who knows these floral organs. In the same manner I might proceed through a very extensive range of vegetable bodies, but these few illustrations are sufficient to demonstrate the practical utility of botany to the pharmacist.

I cannot pass on without urging you to pay great attention to this science. There is no doubt that it is distasteful to the pharmaceutical student, but after a time it becomes delightful. Do not trust to reading to carry you through your examination, it will not do. I attempted to pass after a course of reading, or more correctly speaking cramming; the result was I was "plucked," for which I am heartly glad. I afterwards attended the botany class connected with this Society, conducted by Professor Hennedy; then and then only did I gain a correct knowledge of the elements of botany.

I will now draw your attention to the

DETERIORATION OF DRUGS.

Drugs are liable to deterioration either by long keeping, careless preparation, or Pharmacopœial deviations. Notwithstanding the utmost care, they are liable to spontaneous decomposition, which, in some cases is so gradual as to be almost imperceptible. For example, Ferri Carb. Sacch. can never be found of similar strength. Six samples I found to contain respectively—

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| 48·2 | 48·0 | 37·3 | 30·7 | 30·5 | 30.5 |

Grams weights in one hectogram.

The variation in the strength of these samples is caused by the gradual change of the ferrous carbonate into ferric oxide. When newly and carefully prepared, it should contain 57 per cent. of ferrous carbonate, whereas you will perceive that the nearest approximation to this is sample No. 1, containing 48·2 per cent.; whereas sample No. 6 has become so far oxidised as to contain only 30 5 per cent. You will therefore perceive that it is almost impossible to decide with certainty, except by frequent examinations, whether the article is fit for use or not. Thus you will occasionally find it necessary to throw away preparations which are useless, or at least defective; and in so doing you ought not to consider that you are making a sacrifice, as it is only by strict attention to this and similar duties that you can hope to maintain your character. Another important preparation—Spt. Amm. Arom.—is also very liable to deteriorate not by decomposition, as in our last example, but by gradual diminution of its strength, which may be caused by keeping on high shelves, where it is exposed to a high temperature at night-time; and if the vessel be not well stopped, the ammonia becomes dissipated. 28·39 c.c., or fl.℥j. of B.P. spt. should contain 24·1 c.c., or 6·8 fl.ʒ of S.V.R., and 6·5 decigrams of "$NH_3$." Six samples I have examined, and the following is the percentage amount of S.V.R. and $NH_3$ contained in each 6·48 grams or 100 grains.

| | Gram, wgt. S.V.R. = | Grains, wgt. | Decigrams, $NH_3$ = | Grains. |
|---|---|---|---|---|
| 1 | 3·9 | 60·6 | 1·3 | 2·10 |
| 2 | 3·8 | 60·1 | 1·3 | 2·0 |
| 3. | 3·5 | 54·8 | 1·1 | 1·7 |
| 4 | 3·3 | 52·3 | milligram<br>9·0 | 1·4 |
| 5 | 3·2 | 50·5 | 7·7 | 1·2 |
| 6 | 3·2 | 49·4 | 7·7 | 1·2 |

Showing a very perceptible diminution in spirit, but more particularly in $NH_3$.

Amongst some samples of Liq. Morph. Hydrochl., I found two to contain 1·2 decigrams, or 2 grains of the salt in 28·39 c.c., or fl.℥j., whereas the B P. preparation should contain 2·5 decigrams or 4 grains in 28 39 c.c., or fl.℥j. Such cases of fraud tend to perplex the physician very much in the administration of this or similar preparations, and, moreover, may lead to very serious results. Christison mentions a case which confirms this statement. A man affected with palsy took every evening gradually increasing doses of strychnia less pure than the average, till at length one evening the dose was directed to be increased from $\frac{2}{3}$ to $\frac{3}{4}$ of a grain in two pills; at the same time, the sample of the alkaloid supplied by the apothecary was changed for one of almost snowy whiteness, and consequently purer. Through some lucky whim, the patient took only one pill. In the night-time, he was attacked with violent tetanic convulsions, protracted spasms of the extremities, severe locked jaw, and the other formidable symptoms of poisoning from this alkaloid. From all we know of the effects of this body, there can be little doubt that had he taken both pills the effect would have proved fatal.

In a city like this, where the trading part of our profession is divided between the physician and pharmacist, the question may be asked, does the physician and surgeon keep drugs of as good quality as the legally-qualified pharmacist? I would answer from experience, No! Can we expect it? when the surgeon of the period is a person who has served only an apprenticeship of three months to the profession of pharmacy, or more correctly speaking, two hours daily for a period of three months. How can he in that time learn the art of the compounding of medicines, or the discrimination of drugs? I question if many of them would know the difference between a poppy-head and a potato. An eminent medical gentleman in this city has remarked that as a rule he found the Glasgow pharmacists far more intelligent than many of the surgeons. The following fact will tend to throw light on the great care and accuracy of the manipulations of those intelligent mortals:—Twelve samples of Liq. Amm. Acet.; I found all to contain a superabundance of acid. This, in itself, speaks volumes; when such carelessness is shown in the preparation of a simple material, what can be expected of those of a more complicated nature? It is useless to go further in this direction; you know what good has been derived, and you can easily surmise for yourselves what good is ever likely to be derived by such ignorant parties monopolising the legitimate practice of the pharmacist.

A short discussion followed the reading of the paper each evening, in which several of the members took part. Mr. Kinninmont and others taking objection to the introduction of the metric system of weights and measures; and at the conclusion, on the motion of the President, Mr. McMillan was awarded a hearty vote of thanks.

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The Rating of Chemical Works.—Messrs. J. Muspratt and Co., Liverpool, recently appeared before the Assessment Committee of the Council, upon an appeal against the poor-rates of their extensive chemical works at Widnes. The appellants were represented by Mr. Pierce, solicitor, who stated that the premises had been assessed at £1,446 net annual value. During the past year, however, the overseers had, from some apparently inexplicable cause, increased the assessment to £1,575. He contended that there was no justification for this, inasmuch as no additions had been made to the works rendering necessary an increased annual valuation. Whatever buildings had been erected, and whatever alterations had been made, were merely in substitution for other materials demolished, or in the reparation of old ones worn out. In works of such character and magnitude as those of the Messrs. Muspratt, the wear and tear of machinery and buildings were considerable, and frequent restorations were necessitated; but this could not form any fair ground for the levying of an increased assessment: hence the appeal now made. The committee deemed it necessary to take time to consider the points raised on behalf of the appellants. Finally, however, they gave their decision in favour of the appeal, and consequently authorized the reduction of the rate of assessment. It was also intimated that a new valuation would be made of all the large chemical works of the Lancashire district.

# THE ATTRACTIONS OF THE STUDY OF BOTANY.

By J. Bower Williams, A.P.S.*

What a wide subject such a title suggests! What numberless associations crowd into our minds when we think of *flowers*! All love flowers, be they dwellers in town or country, in palace or in cottage. Well have they been called "Earth's stars." How often has the gift of a flower shed a ray of gladness and struck a chord of joy in a sorrowful heart, bringing home to memory happy thoughts of by-gone days. One of the earliest things a child learns to prize is a flower, and even to old age how strong this love continues. The sight of a primrose or a cowslip will recall to the aged life's early spring, when all things seem to wear a bright and sunny hue. And how often have they conveyed to a careworn and dispirited mind lessons of confidence and trust in a fathers's loving care. In the beautiful words of Mrs. Hemans:—

> "Flowers! when the Saviour's calm benignant eye
> Fell on your gentle beauty—when from you
> That heavenly lesson for all hearts he drew,
> Eternal, universal, as the sky—
> Then, in the bosom of your purity,
> A voice he set as in a temple shrine,
> That life's quick travellers ne'er might pass you by
> Unwarn'd of that sweet oracle divine."

How very different would be the aspect of our globe if it were desitute of trees, and flowers and herbage, how naked and barren the ground would appear without its grassey carpet; how bare and dreary would the old ruined wall or building look without the moss and ivy with which it is mantled, as if striving to hide its decay. And what would the landscape be without its green meadows, and waving corn-fields, its forests and hedges, or in tropical countries its feathery palm trees and bananas?

The love of flowers has never been confined to any particular age of the world, or even to civilized nations. The savage in the forest binds his brow with his native flowers, and exults in their wild beauty. The worship of Flora among the heathens may be traced up to a very early date. She was an object of religious veneration to the Phocians and Sabines, long before the foundation of Rome, and the early Greeks worshipped her under the name of Chloris. As early as the time of Romulus, a festival was introduced in her honour, but the festival games of Florialia were not regularly instituted until B.C. 237, when on consulting the Sybilline books it was decreed that the festival should be kept on the 28th day of April. In eastern countries flowers and perfumes have been considered as one of the indispensable enjoyments of the higher classes of society from the remotest antiquity. From these nations the Romans appear to have borrowed their taste for flowers, which they soon began to consider as forming an essential article in their festive entertainments. The odour of flowers was thought to arouse the appetite, and at the same time facilitate the functions of the brain, and assist in neutralizing the inebriating qualities of wine. Even the warriors did not hesitate to crown themselves with flowers during their principal repast. Garlands were suspended at the gates or in the temples where feasts and solemn rejoicings were held; it was also the custom to place garlands and festoons of flowers on the heads of victims for the sacrifices, at which the priests also appeared crowned with flowers. It was a frequent custom to mix the flowers of their chaplets in wine when they pledged the health of their friends. When Antony supped with Cleopatra, the floors of the apartments, we are told, were generally covered with fragrant flowers; and when Nero sat at banquet in his golden house a shower of flowers and odorous essences were let fall upon him. The Italians have artificers called "Festaroli" whose office it is to make garlands and other decorations for feasts.

Flower gardens are of great antiquity. Semiramis caused gardens to be laid out at the foot of the mountain Bagistanos, which have been described by Diodorus, and whose fame induced Alexander in his progress from Kelone to Mysæa to deviate from the direct road. It is said that Epicurus about B.C. 260, originated the idea of having gardens attached to our houses. The paradise of the Mohammedans is conceived of as a beautiful and luxuriant garden, where ease and a satiety of enjoyment are to be the reward of the faithful. Milton in his "Paradise Lost" has drawn a never-to-be-surpassed picture of a garden where everything calculated to delight the eye or ear is present:—

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* Read before the Midland Counties Chemists' Association on December 28th, 1871.

> "Groves whose rich trees wept odorous gums and balm,
> Others, whose fruit, burnished with golden rind,
> Hung amiable and of delicious taste.
> Betwixt them lawns or level downs, and flocks
> Grazing the tender herb were interposed;
> Or paling hillock, or the flowery lap
> Of some irriguous valley spread her stores,—
> Flowers of all hue, and without thorn the rose."

But though flowers have in all ages been thus esteemed, and every poet has sung their praises, the scientific study of them is of comparatively recent date. It is only in modern times that their structure has been minutely observed and the vegetable kingdom arranged by the labours of many well-known botanists.

"The first artificial system of any importance," says Professor Bentley in his "Manual of Botany," "is that of Casalpinus in 1583." After his comes that of Morison about the year 1670, but Tournefort's, which was promulgated about the year 1695, was for a long time the favourite. No progress of importance, however, was made until Carl Liné (Latinized Linnæus), the great Swedish botanist, in the middle of the last century brought forward his celebrated classification, in which plants were arranged according to the number of their stamens and pistils. This system, though a very *artificial* one, almost universally prevailed until the last twenty or thirty years, when it has been in a great measure superseded by the *natural* system, which owes its origin to Jussieu, although lately it has been more associated with the name of De Candolle. This arrangement takes into account not only the pistil and stamens, but every part of the flower, and its advantages over that of Linnæus can only be appreciated by those who are acquainted with it, for not only is it superior for facility and certainty in its application, but also for simplicity and intelligibleness.

Even now how very few there are who make themselves acquainted with this, one of the most interesting of all studies. Perhaps this has been in some measure owing to the character of botanical books, which have often repelled at the outset by employing language unintelligible to those who have no previous acquaintance with the subject. But no such excuse can be urged now that the press teems with books in which the subject is presented in an attractive and readable form; such for instance as Thomson's "Wild Flowers," Oliver's "Elementary Botany," and others too numerous to mention. But although we think that such books are best adapted for a beginner, we would not be understood to undervalue the scientific works upon the subject. When we consider that some one hundred and twenty thousand species of plants have to be classified, we feel that without some such system of nomenclature it would be impossible to remember their names, or for botanists in different parts of the world to understand each other. Just as in chemistry some system of arrangement and signs had to be generally adopted before it was possible to make any real progress in the science. Many things relating to plants we can see upon the surface, such as their infinite variety of form and colour and fragrance. But although these and other things can be seen without any attentive observation, how wondrously do they repay a deeper study!

> "Not a tree,
> A plant, a leaf, a blossom but contains
> A folio volume. We may read, and read
> And read again, but still find something new;
> Something to please, and something to instruct
> E'en in the noisome weed."

The wisest of men have turned their attention to this pursuit. Solomon, we are told, knew all plants from the cedar of Lebanon to the hyssop of the wall.

It is scarcely possible to enumerate all the advantages of the study of botany. The objects of it are to be found everywhere, on hill and dale, by mountain burn and brae, and therefore it may be pursued in any place and under any circumstances. Its range is the widest and most varied of all studies, comprehending all vegetables, from the giant oak to the tiniest moss or lichen; not confined even to the productions of land, but including also the "flowers of the sea." All that is needed for its pursuit is the observant eye, and a mind imbued with the love of Nature's works, and the only apparatus required is a small pen-knife, and a pocket lens. There is no study so healthful and exhilarating, leading us to ramble with new pleasure over hill and valley in search of rare flowers. And how different is the walk of one who has this object, in comparison to one who has not. How greatly does an interest in it enhance the pleasure of an excursion or of travelling; wherever a botanist goes he will find new objects of interest and excitement. He will no longer take his constitutional with eyes and ears shut to everything around him, but be ever on the alert searching for new treasures. If one little portion of the time which is frequently devoted to the acquisition of the classical languages, were employed in becoming acquainted with the productions of our fields and woods, much would be gained even as a mental discipline, for there is no study which tends more to produce habits of attentive observation, as well as of comparison and generalization than the study of botany. As an instance of the value of those habits of attention to apparently trivial circumstances, I may mention that Professor Owen was led to discover the cause of the fall of the leaf, by observing that on the branch of a tree which had been struck by lightning, the leaves, though dead, did not fall, but remained on the tree until the middle of the winter, when they gradually rotted away, bit by bit. Now, although zoology, as is well known, is Owen's speciality, yet this circumstance led him to investigate the subject, and the result was the discovery that the leaf falls because it is pushed off by the new bud which has begun to germinate, and not because it is dead and withered. A striking proof of this is the fact that the fall of the leaves is accelerated by warm, moist weather in November, much more than by early frost, because such weather stimulates the growth of the new leaf-bud, which consequently pushes off the old leaf earlier, whereas early frost, checking the growth of the bud, may turn the colour of the leaf, but delays its fall.

To the geologist, the painter, the medical student, the pharmaceutical student, and the agriculturist, the study of plants offers special attractions.

To the geologist the study is important, on account of the numerous fossil remains of plants and trees which are found embedded in the different strata of rocks. A minute acquaintance with the subject is accordingly indispensable in conducting his researches, and forming his conclusions.

Where can the painter learn how to arrange his colours so well as from the study of the harmony with which the tints of a flower are blended together? For

> "Who can paint
> Like Nature? Can imagination boast
> Amid its gay creation hues like hers?
> Or can it mix them with that matchless skill,
> And lose them in each other, as appears
> In ev'ry bud that blows."

The way in which these colours are produced is a beautiful instance of mechanical contrivance. The petals of the corolla are composed of a number of minute cells, each containing colouring-matter and delicate spirals interspersed, and being covered by a thin coat or skin. These cells are distinct from one another, and thus a dark colour may be at one part and a light one at another. To the student of medicine this study offers attractions too, but perhaps not more so than to the pharmaceutical student, for many of the most valuable medicines are obtained from plants. Need I instance such remedies as morphia, quinia, and strychnia—remedies which are resorted to in one form or another, to alleviate the sufferings of thousands daily?

The pharmaceutical student will find in this study how imperfect is his art as a chemist, in comparison with the chemistry of nature, which distills from the earth, and conveys, by distinct channels in the smallest stem, all that is necessary to produce foliage, flowers, and fruit, together with colour, taste, and smell; the most opposite fluids being separated only by the most delicate divisions. The effect of leaves in purifying the air, by absorbing the carbonic acid, and giving out oxygen, is familiar to all. Another beautiful arrangement is that by which the sap is formed in trees in spring. In autumn the trees are furnished with starch, which is insoluble in water (Bentley p. 291), and consequently remains during the winter without producing any effect. When the warm weather comes the starch is changed by the heat into dextrine, which is as soluble as starch is insoluble, and therefore unites with water to form sap, and the trees grow. The wisdom of this arrangement is obvious, for supposing starch was soluble, the rains o winter would wash it away, or it would unite with the water to form sap, and the trees would grow at a time when the young shoots would be killed with cold.

## Corner for Students.

CONDUCTED BY RICHARD J. MOSS, F.C.S.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The new editions of Fownes's *Manual of Chemistry*, and Attfield's *Chemistry: General, Medical, and Pharmaceutical*, supply the data required for calculations, and are recommended as text-books.

### ANALYTICAL EXERCISE.

The mixture of salts which we purpose giving for analysis this month is to be examined for the acidulous as well as the metallic radicals. Students who wish to compete should send in their names and addresses before the 20th inst. On the 25th we shall forward samples of the mixture.

Students' papers will, as usual, be received up to the 15th of the following month.

### ANSWERS.

Exercise in Qualitative Analysis.—The mixture given for analysis in accordance with the announcement in our November number, contained copper, manganese, aluminium, potassium, and ammonium, with traces of iron (triad), magnesium, and calcium. The quantity of calcium present was not worthy of notice, as it could not be precipitated by the ordinary group reagent, ammonium carbonate.

There were thirty-eight samples of the mixture weighing our grammes each, forwarded to the various applicants; out of these we received twenty-four analyses from the students whose names are arranged in the annexed list in order of merit. The maximum number of marks attainable is 100.

The examination of the papers which we received from our correspondents last month is quite enough to convince anybody that the making of simple experiments and observations are matters of greater difficulty than is usually supposed. The various remarks of our correspondents concerning the properties and the composition of the powders which they examined are calculated to make one form a high estimate of the value of truth when once it is found; for they show how hard it is to find it, and how necessary it is to cultivate a habit of accurate observation if we wish to derive a real benefit from the use of our senses. The tests of the solubility of the substance received very different treatment from different students. Some state that it was readily soluble in water; others that on boiling a portion of it in water, in nitric, and in hydrochloric acids, they failed to get a perfect solution; between these two extremes we had nearly every grade of solubility represented. The truth of the matter was that about two-thirds of the powder dissolved readily in cold water; on boiling, the remainder dissolved, with the exception of a trace, just sufficient to prevent the solution from being perfectly clear, but too small to be examined separately, and it was not dissolved by the addition of nitric and hydrochloric acid. If a larger supply of the powder was obtainable a sufficient quantity of this residue might have been collected, but under the circumstances it was only necessary to filter the solution, and proceed with the examination. As the substance which we shall give for this month's exercise is to be examined for the acidulous radicals, it will be necessary to make accurate observations on its behaviour with solvents. Some of the accounts which we received of blowpipe operations are very indefinite. It should be distinctly understood that the blowpipe flame may be made to perform two very different chemical operations. If the nozzle of the blowpipe be introduced one-eighth of an inch into the flame of the lamp, which we shall assume is a Bunsen, with the air-holes closed—and a weak current of air employed, a flame is obtained in which the combustion is imperfect. The heated gases of this flame are insufficiently supplied with oxygen, hence a metallic oxide exposed to its action is deprived of its oxygen, for which reason this is called the *reducing* or *deoxidizing* flame. A substance exposed to its action should be protected from the counteracting influence of the pale blue cone which surrounds this flame, otherwise the operator may fail in obtaining a metallic bead when such should be produced. If the nozzle of the blowpipe be kept nearly touching the flame of the lamp, and a strong current of air employed, a flame is obtained in which the combustion of the hydrocarbons of the coal gas is perfect, and an excess of highly heated oxygen is present ready to combine with any substance that has an affinity for it at this high temperature, hence this flame is called the *oxidizing* flame. These results may be obtained by the flame of a Bunsen gas lamp. When this flame is fully supplied with air, its extreme point possesses high oxidising powers. Near the centre of that portion of the flame which is thickest, just above the inner cone, is the reducing flame. The colour which substances impart to a borax bead often varies with the nature of the flame in which it is heated—for example, manganese yields an amethyst-red bead in the outer or oxidising flame, and a colourless one in the inner or reducing flame, iron yields a yellow, and copper a blue bead in the outer flame, but in the inner flame these metals yield green and red beads respectively; so that it is clearly necessary to be particular about the heating of the beads.

### PRIZES.

The First Prize for the best analysis of the mixture of salts has been awarded to

James Spencer, 13, Haymarket-street, Bury, Lancashire.

The Second Prize for the second best analysis of the same mixture has been awarded to

M. C. Atkinson, 225, Oxford-street, Manchester.

*Marks awarded for Answers.*

| | Total. |
|---|---|
| J. Spencer (*1st prize*) | 95 |
| M. C. Atkinson (*2nd prize*) | 93 |
| Palmyra | 90 |
| B. P. | 89 |
| *Alpha (Kentish Town) | 86 |
| J. F. Smith | 85 |
| Omicron | 84 |
| W. A. S. | 83 |
| E. J. B... | 82 |
| Analyst.. | 81 |
| C. St. Clair | 75 |
| *Alpha (Liverpool) | 71 |
| D. Hayward | 65 |
| T. Griffin | 62 |
| A. N. L. | 60 |
| *Alpha (New Cavendish Street) | 55 |
| Nil sine laboro | 53 |
| C. E. B... | 48 |
| W. Laugher | 40 |
| W. Mather, jun. | 35 |
| J. H. Watson | 32 |
| F. W. Fletcher | 30 |
| Graham | 29 |
| Move on | 5 |

* It would be well if some of our correspondents would proceed a little further with the study of the Greek language.

### TO CORRESPONDENTS.

*** All Communications should include the names and addresses of the writers; those which reach us after the fifteenth day of the month succeeding that in which the questions appear will be disregarded.

*Prizes.*—The students to whom prizes are awarded are requested to write at once to the publisher naming the book they select, and stating how they wish it forwarded.

*Palmyra.*—Although calcium was present, the quantity was too small to be precipitated as you state. If the filter paper employed is not entirely free from it, you may have a quite perceptible quantity present after two or three filtrations.

*B. P.*—The iron present was in the condition of ferric chloride; we cannot imagine how you observed the blue coloration on the addition of potassium ferricyanide to the original solution; we got a dense brown precipitate.

*J. F. Smith.*—Your fusion of the precipitate with sodium carbonate and potassium nitrate appears to have been very imperfect, for the manganese should have been converted into sodium manganate, and subsequently dissolved as such.

*E. J. B.*—The potassium ferrocyanide test for iron is not available in this case, on account of the quantity of iron present being so small, and that of copper (which gives a reddish brown precipitate with this reagent) so large; but by adding an excess of ammonia, the triad iron present is precipitated in conjunction with the aluminium, and part of the manganese; on dissolving this precipitate in acetic acid, a solution is obtained which gives a blue precipitate with potassium ferrocyanide, and a red coloration with potassium sulpho-cyanide.

*C. St. Clair.*—You probably had free acetic acid in the solution which you tested for manganese, in consequence of not being careful to add an excess of ammonia. This would account for the non-precipitation of the manganese, as the sulphide is soluble in acetic acid.

*D. Hayward.*—You did not even seek for ammonia, there was a comparatively large quantity of it present as chloride.

*A. N. L.*—The solution which you tested for potassium was probably too dilute. You should have had little difficulty in detecting this substance, as there was quite enough of it present to give very decided results. If your analysis was conducted as your paper states, the residue which you tested for potassium and sodium could have consisted of salts of one or both of these substances only, but you proved both to be absent, which was impossible.

*Nil sine labore.*—The sublimate which you obtained in the preliminary examination consisted of ammonium chloride; your test for ammonia must have been very carelessly performed.

*C. E. B.*—We are surprised that you got no precipitate with platinic chloride when testing for potassium, as you had ammonium salts present; they should have been expelled by ignition before applying this test. See remarks to *A. N. L.*

*W. Mather, jun.*—We much prefer a tabulated account of the analysis. You do not state what the tests were which demonstrated the absence of aluminium and manganese.

*Move on.*—We recommend you to do so; but perhaps it would be well to try the next analysis, and give us the full particulars of your work, as without this we cannot account for your results.

### *Books offered as First Prizes.*

Attfield's *Chemistry: General, Medical, and Pharmaceutical.* (Van Voorst.)
Balfour's *Manual of Botany.* (Black.)
Brooke's *Elements of Natural Philosophy* (Churchill.)
Conington's *Handbook of Chemical Analysis;* with Tables of Qualitative Analysis adapted to the same. (Longmans.)
Eliot and Storer's *Manual of Inorganic Chemistry.* (Van Voorst.)
Fownes's *Manual of Elementary Chemistry.* (Churchill.)
Fresenius's *Qualitative Analysis.* (Churchill.)
Galloway's *Qualitative Analysis.* (Churchill.)
Galloway's *Second Step in Chemistry.* (Churchill.)
Ganot and Atkinson's *Elementary Treatise on Physics.* (Longmans.)
Garrod's *Materia Medica;* with Modern Chemical Notation. (Walton.)
Noad's *Chemical Analysis, Qualitative* and *Quantitative.* (Reeve.)
Northcote and Church's *Qualitative Analysis.* (Van Voorst.)
Odling's *Outlines of Chemistry.* (Longmans.)
Royle and Headland's *Materia Medica.* (Churchill.)
Williamson's *Chemistry for Students.* (Clarendon Press.)
Barff's *Introduction to Scientific Chemistry.* (Groombridge.)

[Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.] *See list on another page.*

### *Books offered as Second Prizes.*

Balfour's *Elements of Botany.* (Black.)
Bloxam's *Laboratory Teaching.* (Churchill.)
Church's *Guide for Students in Agricultural Chemistry.* (Van Voorst.)
Galloway's *First Step in Chemistry.* (Churchill.)
Gill's *Chemistry for Schools.* (Walton.)
Hofmann's *Introduction to Modern Chemistry.* (Walton.)
Huxley's *Lessons in Elementary Physiology.* (Macmillan.)
Oliver's *Lessons in Elementary Botany.* (Macmillan.)
Orme's *Introduction to the Science of Heat.* (Groombridge.)
Potts's *Elements of Euclid.* School Edition. (Longmans.)
Roscoe's *Lessons in Elementary Chemistry.* (Macmillan.)
Wormell's *Elementary Course of Mechanics.* (Groombridge.)
Wurtz's *History of Chemical Theory.* Translated by Watts. (Macmillan.)

[Any scientific book which is sold for about five shillings may be taken as a second prize.] *See list on another page.*

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## THE CHICAGO COLLEGE FUND.

THE following is a list of the subscriptions promised, up to January 5th, 1872.

The members of the Chicago College of Pharmacy, notwithstanding their own great losses, will themselves provide a new building. Their appeal is solely for donations of articles for the library, lecture-room and museum. English pharmacists, unable to give books, etc., are invited to send subscriptions of money, the whole of which will be expended by the committee in the purchase of appropriate contributions.

Parcels of books, specimens of chemicals, or articles of the Materia Medica, apparatus and subscriptions, may be sent to Professor ATTFIELD, 17, Bloomsbury-square, London, W.C. Cheques, crossed "London and Westminster Bank," and Post-Office orders, drawn for "High Holborn," may be made payable to JOHN ATTFIELD. All donations will be acknowledged in the *Pharmaceutical Journal* and CHEMIST AND DRUGGIST.

Amount previously acknowledged, £132 15s. 6d.

| | £ | s. | d. |
|---|---|---|---|
| Barron, Harvoys and Co., London | 10 | 10 | 0 |
| Edw. Smith, Torquay | 1 | 1 | 0 |
| T. S. Greensill, Isle of Man | 1 | 1 | 0 |
| C. H. Wood, 300, High Holborn, W.C. | 1 | 1 | 0 |
| R. Gadd, Harleyford-road, S.E. | 0 | 10 | 6 |
| Henry Deane, Clapham Common, S. | 2 | 0 | 0 |
| D. T. Wilkes, Upton-on-Severn | 0 | 5 | 0 |
| J. Quinlan, Barnsbury-road, N. | 0 | 5 | 0 |
| W. R. Harvey, Leicester | 0 | 5 | 0 |
| W. A. Sanger, Oxford-street, W. | 2 | 0 | 0 |
| P. W. Cordelier, Sittingbourne | 0 | 5 | 0 |
| G. Carr, Sheffield | 0 | 5 | 0 |
| G. Grindell, Hull | 0 | 10 | 6 |
| Horner and Sons, London | 10 | 10 | 0 |
| Maw, Son, and Thompson, London | 10 | 10 | 0 |
| R. S. Faulconer, Walworth-road, S. | 5 | 5 | 0 |
| C. J. Kirkman, Farnham | 0 | 5 | 0 |
| — Higgins, Farnham | 0 | 5 | 0 |
| Humphrey Clunch, New Malton | 0 | 2 | 6 |
| N. Miller, Preston | 0 | 5 | 0 |
| Severs and Bateson, Kendal | 0 | 10 | 6 |
| G. Taylor, Kendal | 0 | 3 | 0 |
| J. Bemrose, Long Bennington | 0 | 5 | 6 |
| T. M'Crindle, Long Bennington | 0 | 2 | 0 |
| J. S Oxley, Long Bennington | 0 | 2 | 6 |
| W. and J. Burrow, Great Malvern | 1 | 1 | 0 |
| Edward Davies, Liverpool | 1 | 1 | 0 |
| Alfred Bishop, Specksfields, E. | 1 | 1 | 0 |
| Savory and Moore, Bond-street, W. | 5 | 0 | 0 |
| Peter Squire, Oxford-street, W. | 5 | 5 | 0 |
| T. B. Groves, Weymouth | 1 | 1 | 0 |
| A. Bottle, Dover | 1 | 1 | 0 |
| J. Robbins and Co., 372, Oxford-street, W. | 2 | 2 | 0 |
| Allen and Hanburys, Plough-court. E.C. | 5 | 5 | 0 |
| T. M. Orpe, 329, Old Kent-road, S.E. | 0 | 10 | 0 |
| E. Banks, Pendlebury | 0 | 2 | 6 |
| Braddock and Bagshaw, Oldham | 1 | 0 | 0 |
| J. Sims, Hirwain, Glamorgan | 0 | 5 | 0 |
| E. Chambers Nicholson, Herne Hill, Dulwich, S.E. | 5 | 0 | 0 |
| J. T. Cordelier, Sittingbourne | 0 | 3 | 0 |
| W. S. Cordelier, Sittingbourne | 0 | 2 | 6 |
| W. C. Young, Plaistow, E | 0 | 5 | 0 |
| C. J. Radermacher, 10, Mornington-road, N.W. | 1 | 1 | 0 |
| W. T. Partridge, Truro | 0 | 2 | 6 |
| Darby and Gosden, 140, Leadenhall-street, E.C. | 2 | 2 | 0 |
| T. Elliott, 14, Market-place, Chesterfield | 0 | 2 | 6 |
| W. Parsons, St. Mary-street, Portsmouth | 0 | 5 | 0 |
| S. B. Maggs, St. Leonards-on-Sea | 0 | 10 | 6 |
| A Friend, by ditto | 0 | 2 | 6 |
| D. Frederick Davis, Leominster | 1 | 1 | 0 |
| Chater and Son, Watford | 0 | 10 | 6 |
| H. C. Baildon, 73, Princes-street, Edinburgh | 2 | 2 | 0 |
| John Mackay, 119, George-street, Edinburgh | 2 | 2 | 0 |
| Alex. Napier, 69, South Clerk-street, Edinburgh | 0 | 10 | 6 |
| Duncan Flockhart and Co., Edinburgh | 2 | 2 | 0 |
| Macfarlane and Co., North-bridge, Edinburgh | 2 | 2 | 0 |
| Alexander Noble, Circus-place, Edinburgh | 0 | 10 | 6 |
| Thomas Fairgrieve, Clerk-street, Edinburgh | 1 | 1 | 0 |
| T. and H. Smith and Co., Edinburgh | 2 | 2 | 0 |
| David Kemp, Portobello | 0 | 10 | 6 |
| Members of the Colchester Chemists' Association | 2 | 2 | 0 |
| John Shaw, 24, Great George-place, Liverpool | 1 | 1 | 0 |
| Bartlett Hooper, 43, King William-street, E.C. | 5 | 5 | 0 |
| F. Earle, 22, Market-place, Hull | 0 | 10 | 6 |
| H. Gale, 3, Millbrook-place, Harrington-square, N.W. | 1 | 1 | 0 |
| Samuel Johnson, 7, Church-street, Liverpool | 5 | 0 | 0 |
| C. E. F. | 0 | 5 | 0 |
| W. H. Baigent, Shefford, Bedfordshire | 0 | 10 | 6 |
| George Meggeson, 7, Churchfield-road, East Acton | 2 | 2 | 0 |
| Richard Forrest, 2, Cork-street, W. | 1 | 1 | 0 |
| John Turner, Aylesbury | 0 | 10 | 6 |
| John Whittaker, 49, London-street, Fitzroy-square | 0 | 10 | 0 |
| G. Sharples, 7, Fishergate, Preston | 0 | 10 | 6 |
| J. B. Guyer, 11, Strand, Torquay | 0 | 10 | 6 |
| W. Stott, Sowerby-bridge | 0 | 5 | 0 |
| W. Dyer, Halifax | 0 | 5 | 0 |
| J. Jessop, Halifax | 0 | 5 | 0 |
| J. Farr, Halifax | 0 | 5 | 0 |
| R. and W. Brook, Halifax | 0 | 5 | 0 |
| W. C. Hebden, 70, Northgate, Halifax | 0 | 5 | 0 |
| B. Wood, 63, Northgate, Halifax | 0 | 5 | 0 |
| J. B. Brierly, Haley-hill, Halifax | 0 | 5 | 0 |
| J. K. Hey, Bridge gate, Hebdon-bridge, Yorkshire | 0 | 5 | 0 |
| J. Cardwell, Brighouse, Yorkshire | 0 | 5 | 0 |
| J. Chappell, Brighouse, Yorkshire | 0 | 5 | 0 |
| G. Hodson, 2, Church-street, Elland, Yorkshire | 0 | 5 | 0 |
| R. Cockroft, Mytholmroyd, Manchester | 0 | 5 | 0 |
| Michael Jones, Flint | 0 | 5 | 0 |
| Thomas Milson, Chow Magna | 0 | 5 | 0 |
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STUDENTS.

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| Mr. Edmonds | 2 | 0 |
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| Mr. Dutchman | 2 | 6 |
| Mr. Walter Hills | 5 | 0 |
| Mr. J. C. Sargent | 5 | 0 |
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| Mr. E. H. Stewart | 2 | 6 |
| Mr W. Walker | 5 | 0 |
| Mr. R Chubb | 2 | 6 |
| Mr. J. C. T. Day | 2 | 6 |
| Mr. W. W B. Stoddart | 5 | 0 |
| Mr. R. Purviss | 2 | 6 |
| Mr. Dismorr | 2 | 6 |
| Mr. Westwood | 10 | 6 |
| Mr. Collishaw | 2 | 6 |
| Mr. Cleaver | 2 | 6 |

Also Books from

*Mr. Parker.*

Bowman's Chemistry.

*Mr. J. Slater.*

Attfield's Chemistry, 1st edition.

*Mr. H. E. Godfrey.*

Ciceronis Epistolæ ad Atticum.
Cicero De Officiis
Garrod's Materia Medica.
Heller's Chemistry of Urine.
Arnold's Longer Latin Exercises.
Latin Prose Composition.
Pharmacopœia of London Physicians, 1824.

*Mr. Fentiman.*

Thomson's Chemistry, 2 vols.
Griffin's Chemical Recreations.

The following is a list of the books promised up to January 5th, 1872.

[Duplicates of books, lecture-specimens, etc., will be dealt with by the Committee, at their discretion, for the general benefit of the fund, unless instructions to the contrary are forwarded with the parcels. Gentlemen are invited to inquire of Professor ATTFIELD, 17, Bloomsbury-square, London, W.C., as to whether or not copies of the books, etc. which they propose to give, have already been contributed.]

Number of Volumes previously acknowledged, 110.

*A. Allchin, Barnsbury, N.*—Kane's "Elements of Chemistry;" Mitchell's "Practical Assaying;" Smee's "Electro-Metallurgy;" Mitscherlich's "Chemistry."

*W. A. Sanger, Oxford-street, W.*—Brande's "Chemistry," 3 vols.; Noad's "Chemical Analysis;" British Pharmacopœia, 1864; Faraday's "Chemical Manipulation;" Spurgin's "Materia Medica;" Buchan's "Domestic Medicine;" Balfour's "Botany;" Beeton's "Chemistry;" Fownes' "Chemistry;" Pharmacopœia, 1796; Stockhardt's "Experimental Chemistry;" Hooper's "Medical Dictionary;" Bentley's "Botany;" Withering's "British Plants," 4 vols.

*R. O. Fitch, South Hackney, E.*—Normandy's "Chemical Analysis;" Hunt's "Poetry of Science."

*Peter Squire, Oxford-street, W.*—Companion to the British Pharmacopœia, 3 copies; Pharmacopœias of the London Hospitals, 3 copies.

*Professors at the School of Pharmacy, Paris.*—A box of books.

*William Fingland, Wavertree, Liverpool.*—A set of five large "Lithographic Plates of the Romano-British Tesselated Pavements of England."

*Samuel Herbert, Bristol.*—Lernie's "English Grammar;" "Pharmaceutical Latin Grammar;" Lescher's "Guide to the Modified Examination;" Buckmaster's "Chemistry."

*T. Hambridge, Oxford.*—"Magazine of Natural History."

*John Taylor, Torquay.*—"The Pharmaceutical Times," vols. 1, 2, and 3; Morfit's "Chemical Manipulation;" Fyfe's "Elements of Chemistry;" "Magazine of Science," vols. 1 to 6.

*George Sant, Atherstone.*—Wittstein's "Chemistry," by Darby; Barber's "British and London Pharmacopœias Compared;" Barff's "Introduction to Chemistry."

*The Council of the Chemical Society of London.*—A set of the "Journals and Transactions of the Chemical Society."

*E. Whalley, Kingston-on-Thames.*—Beasley's "Pocket Formulary;" Blancard's "Physical Dictionary;" The "New Edinburgh Dispensatory, 1801;" Shaw's "Edinburgh Dispensatory, 1737;" The "British Pharmacopœia and Family Physician;" A "Book on Spectacles."

*J. Herbert, Kingston-on-Thames.*—London Pharmacopœia, 1815, Translation."

*S. H. Cooper, West Hartlepool.*—Brougham on "Instinct;" Parkinson's "Chemical Pocket-book;" Parkes's "Chemical Catechism;" "The Chemist;" Laplace's Celestial Mechanics."

*B. M. Stoakes, Leamington.*—Lescher's "Elements of Pharmacy;" Steggall's "First Lines for Chemists and Druggists."

*Joseph Ince, Vigo-street, W.*—Wilson's "Life and Works of Cavendish."

*William Matthews, Wigmore-street, W.*—Brande's "Chemistry," 2 vols.; Thénard's "Analysis."

*A. W. Smith, Rye.*—Paris's "Medical Chemistry;" Mohr and Redwood's "Practical Pharmacy;" Thomson's "Materia Medica," 2 vols.

*Henry Cousins, Rye.*—"Professions," 3 vols.; "Wealth and Labour," 3 vols.

*Messrs. Maw, Son and Thompson, London.*—Book of Illustrations.

*H. C. Baildon, Edinburgh.*—Mohr and Redwood's "Practical Pharmacy;" Phillip's "Pharmacopœia Londinensis," 1857; Brande's "Pharmacy;" Squire's "Three Pharmacopœias."

*J. Whittaker, London-streeet, W.*—"Translation of the Pharmacopœia Londinensis," 1852; Steggall's "First Lines;" "Selecta è Prescriptis," 1847; "Pharmacopœia accomodata ad, etc.;" Fownes' "Chemistry," 1844; "Pharmacopœia Reformata," 1744; Lindley's "Elements of Botany," 1841; Tomes's "Dental Physiology."

*John Beddard, 46, Churton-street, S.W.*—"Accounts of Belfast Harbour," 1786–1845; "Papers by Dr. Davy;" "On the Commercial Relations of the United States;" "Archeia tēs Hellēnikēs Palingenesias;" "Report on Silks and Wines," 1835; "Enquiries concerning Europe," 1758; "Edinburgh New Dispensatory," 1786; Ditto, 1816; Bartlett on "Consumption;" "P. Terentii Comœdiæ sex," 1739; "Chemistry as exemplifying the Beneficence of God," Fownes' "Xenophontis Œconomicus," 1750; "Hunt on the Skin;" Hamilton's "Young Practitioner's Companion;" Aikin's "Materia Medica," 1785; "Les Offices de Cicéron."

*G. C. Walmough, 46, Churton-street, S.W.*—Dewhurst's "Medical Adviser," 2 vols.; Meade's "Manual of Prescriptions," 1835;" Smedley's "Practical Hydropathy.

*Colchester Chemists' Association.*—Muspratt's "Chemistry," 2 vols.; Lardner's "Science and Art," 12 vols.; Orr's "Circle of the Sciences," 9 vols.

*F. Sutton, Norwich.*—Sutton's "Volumetric Analysis."

*T. and H. Smith and Co., Edinburgh.*—Specimens of Chemicals.

*By C. R. C. Tichborne, 40, Mary-street, Dublin.*—*H. Draper.*—Specimens of Anthraquinone and Picric Acid; *Dr. C. Cameron.*—The "Stock Feeder's Manual;" "Handy Book on Food;" "Handy Book on Health;" "Lectures on Health;" "Original Papers and Reports;" *Dr. E. Mapother.*—"Lectures on Public Health;" "Medical Representation in Parliament;" "Animal Physiology;" "Original Papers;" *C. R. C. Tichborne.*—Specimens of Bromide and Iodide of Potassium; "Original Papers and Researches."

*Eugène Rimmel, 98, Strand, W.C.*—"Annales de l'Exposition du Havre;" Rimmel's "Book of Perfumes;" "Rimmel's Recollections of the Paris Exhibition."

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WE mentioned recently the Hereford Proprietary School and Technical College as a school conducted on the somewhat sensible system of teaching boys something likely to be useful to them in their probable after pursuits. We referred to it expressly because we noticed that the preliminary education of pharmaceutical chemists was one of the pursuits especially regarded. We find in a recent issue of the *Hereford Times* an account of the distribution of prizes at this school by the Rev. S. Clark, of Magdalen College, Oxford, the Examiner. On this occasion prizes were given not only for the general branches of study, but also for the following more unusual departments of technical education:—Geology, botany, chemistry, agriculture, surveying, and mechanics. The examiner spoke very highly of the laboratories and other means whereby an acquaintance with those arts and sciences is facilitated at this school.

THE CHEMIST AND DRUGGIST

COLONIAL BUILDINGS, CANNON-ST., LONDON, E.C.

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| Mexico .................... | 7/6 |
| New Zealand ................ | 7/0 |
| Norway .................... | 7/6 |
| Peru .................... | 8/6 |
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## TAKING STOCK.

THE old year is gone: let it pass without regret. Three dark shadows have given it historic interest. A disastrous war, begun in utter recklessness and ending in confusion, has marred the beauty of the loveliest city in the world, and made desolate countless families in Europe. The very wing of Death's angel has touched the throne, but the prayer of faith shall save the sick, and the Lord shall raise him up. The Fire King has held his revels in Chicago. It is not for us to chronicle political events—we follow our profession, pharmacy; and now in this month of January we take stock—where are we? how do we stand, and what has been the past? It will be for us to mention some things with unmeasured praise: to lament others, and to condemn a certain proposition which, though emanating from one of the most cultured pharmacists amongst us, we deem fanciful and unwise.

First, let us direct attention to the efforts made to extend the operations of the Benevolent Fund. The list of subscriptions given by our contemporary would warm a heart of stone. Comparatively few of *our* readers take an active interest in this excellent institution, which we cordially and earnestly recommend to their consideration.

Brightly suggestive of all things pleasurable and instructive has been the British Pharmaceutical Conference, held in Edinburgh. The weather was magnificent; the place need not be described. Many of the papers were of more than average interest—specially that by Professor Wright on "New Derivatives from Codeia," "Crystalline Principles in Aloes," by Professor Flückiger, of Bern; and a practical paper on "Linseed and Linseed Meal," by Mr. Greenish. This year, at any *réunion* in Brighton, let us suggest the utmost possible mingling of all the members. The country wishes to know London, and the metropolis as eagerly desires to know its provincial brethren. Give them both a chance. Details of the American Pharmaceutical Association would trespass too much upon our space, but not even for that reason must we omit heartfelt recognition.

Amongst public occurrences we must mention that the Lord Mayor Dakin has received the honour of knighthood, and in addition to his other good deeds made a speech (enthusiastically received), at the last chemists' ball.

Death has busily reaped his harvest. We have lost Sheridan Muspratt, both Duncan and Flockhart, John Balmer, of Islington, and John Savory, whose name has so long been a household word. As regards sensational matters, we may state that Cundurango* has turned out a swindle, and that the Council of the Society reports its meetings.

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* We once were acquainted with a veritable *Docteur noir* who professed to cure cancer. He used an astringent ointment, the nature of which we think we are not at liberty to disclose; Vin. Ferri made with Malaga, a red-hot bar of iron being inserted in the solution, and sarsaparilla root given according to his directions, in one ounce packets. He had a large practice.

A library collection of autograph prescriptions has been arranged. Two noteworthy papers have been produced, one by Professor Redwood on "Proportional Numbers to represent Weights and Measures"; the other on "Nomenclature," by Professor Attfield; and a thoroughly well-digested, skilfully-compiled Year-Book has appeared under the editorship of Mr. C. H. Wood. The publication of this last-named admirable treatise saves us from the necessity of enumerating recent pharmaceutical preparations, yet we must say a word respecting the marvellous commercial price fluctuations some trade drugs and chemicals have undergone.

To Buy on Market.

| | Jan., 1872. | | Jan., 1871. | |
|---|---|---|---|---|
| Cantharides | 7/6 | | 4/6 | |
| Cinnamon Oil | 7/ | has been 9/ in the year. | 5/6 | |
| Nutmegs | 5/ | common varieties even more advanced. | 4/ | |
| Honey, both English and foreign | 10d. | | 7½d. | |
| Chloral hyd. | 4/6 | duty 1/4 on foreign. | 8/ | no duty |
| Senega root | 5/9 | | 3/6 | |
| Almonds, bitter | 45/ cwt. | | 60/ cwt. | |
| Vanillas | 48/ lb. | | 36/ lb. | |
| Shellac | £8/8 to £8/15 cwt. | | £66/ cwt. | |

Mercury and its salts have changed as many times as months during the year. What shall we say of potash? It is incumbent on us to take stock.

| | | 1872. | 1871. |
|---|---|---|---|
| Potash Bicarbonate | cwt. | 65/ | 70/ |
| " Bichromate | lb. | 10d. | 5d. |
| " Chlorate | " | 1/6 | 10½d. |
| " Hydriodate | " | 35/ | 14/ |
| " Prussiate, red | " | 3/ | 1/10 |
| " " yellow | " | 1/9½ | 11¾d. |
| Iodine, *branded* | " | *none* | 10¾d. |
| seconds | " | 2/4 | 10½d. |

Two reasons have been offered for this rise in iodines—first, the French method of preparing silk in order to gain a golden russet shiny colour; secondly, the employment of biniodide of mercury to paint her Majesty's iron-clad vessels as the only effectual precaution against the action of sea-water.

We note the failure of the olive crop, and the same of oil of cinnamon, already quoted in the list. So utterly was the supply exhausted, that orders have been exclusively executed from English drawn oil. We advise our readers to take stock, and turn their speculative abilities into a channel far more productive than limited liability.

One of the most encouraging features of the past twelve month is the position and success of the laboratory of the Society. Formerly a dark cellar and a loss, its actual condition is as follows:—

The influence of the Pharmacy Act of 1868 on the numbers of pupils seeking instruction in the laboratories, was very considerable. We have had some difficulty in ascertaining how many worked in the first half of the twenty-eight years the school has been instituted; but it appears that from 1845 to 1850 the entries varied little from twenty-eight per annum. Between 1850 and 1860 the average yearly roll was nearer thirty-eight. It then sank, and in the session 1862-63, the first under Professor Attfield, the number was twenty-nine. This rose successively to thirty-three, thirty-eight, forty-two, and forty-seven, and during the three years since the passing of the Pharmacy Act of 1868, went up to eighty-eight, 111, and last session reached 113. With increased numbers of students it has not been found necessary to augment the staff of teachers, namely, one professor and two assistants. In other words, the laboratories at Bloomsbury-square have been attended by larger classes than ever. Most of the students, however, only study long enough to enable them to pass the minor examination. To *teach* such men must be wearisome, and the temptation to *cram* most powerful. It is not astonishing that so obvious a demand for "coaching" should produce a commensurate supply of the abomination, and that we should be unblushingly told by advertisement that an *ignoramus* may be trasmuted into a *chemist and druggist* in a month. Why not organize such a system of examination that every candidate must demonstrate his ability to test the quality of his own drugs, and so detect adulterations? The man who cannot do this is not a true chemist and druggist. Has Mr. Schacht ever considered what would be the effect of his scheme of a written examination under which the Pharmaceutical Society should mete out its sole measure of pecuniary support to educational efforts, or have other reformers reflected on the result of making success at "the minor," the gauge of similar endeavours? Better keep as we are, openly and efficiently promote pharmaceutical education; and when our one school is full, start a similar college in a Northern centre, afterwards one in the Midland districts; and when the demand arises, another in the South. For one and the same body to educate and examine may be an unsound principle, but any other possible in this generation is hopeless.

Further let us add that every student at this moment is free to gain his education where he pleases, whether in a Cliftonian College or the New Cut, to an examiner it is an item of profound indifference; and with deference be it spoken, there is not an association that does not derive direct or indirect prestige from its connection with the parent institution, just as Westminster Abbey reflects respectability on the humblest Ebenezer. Close the doors of Bloomsbury and fritter its money over the provinces: consign its library to dust, and its museums to the joint care of a charwoman and a curator; let, twice a month, one dozen select examiners flit through its deserted passages and stare at the never-cleaned bust of the late Jacob Bell: pauperize the professors, and bid them start little academies of their own, then take stock. What is the gain? Will any honourable pharmacists in the country tell us, for we want to make out our balance-sheet?

For one moment only let us interrupt our review with a notice, brief as may be, respecting the fearful calamity at Chicago. Five square miles of city burnt, but what concerns us most its pharmaceutical college, library, and museum, all destroyed. Help has been afforded to our American brethren, and books to the value of 300 guineas could be despatched at once; but contributions keep flowing in, so that 500 guineas will probably represent the sympathy of English pharmacists for those of Chicago.

The question of Compulsory Poison Regulations has excited painful and exclusive attention for many months. The details of the contest are familiar. One side asserted that they were under an implied obligation to propose to the Government a definite code of action with regard to dangerous remedies; and moreover they thought legal

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Stimulated by his success, he went to Paris and took rooms in the most fashionable quarter, hired a brougham, and established a considerable connection. In a dark hour he was introduced to Velpeau, who allowed him, under supervision, to practice in a cancer ward. He was subsequently in prison, for various reasons. French law has no mercy on the charlatan.

restrictions desirable and wise. The rest claimed the right to manage their own affairs, and considered themselves competent to carry out sensible shop arrangements, either from their long practical experience or educational training. A desperate quarrel ensued, aggravated by a paper war. This journal addressed 13,000 circulars to the members of the trade respecting these proposals, 5,040 voted against, and 391 for. 1,438 circulars never reached their destination. Finally the regulations came to grief, but their discussion left behind an angry feeling, which is to ourselves a daily source of regret.

One last word—we deplore the unsatisfactory character of the ordinary English education of our apprentices, as evidenced by the papers of the Preliminary Examinations. The standard is low, and compares disadvantageously with that presented by the children of ordinary tradespeople. We are told in confidence that the questions are so simple, that they dare not be presented by the London Board, to any grammar or training school of moderate pretensions. Perhaps the fault is in the neglect of *home* instruction. The shop is God, and to it all bow; the child allowed to wander at its own sweet will, becomes the companion of the errand-boy, while the mother slaves. The educational horizon is obscure. Then the youth, miserably prepared, is sent to a local school, from which at an unripe age, he is snatched unrighteously. Let us take stock—*do* men gather grapes off thorns? Kind readers, think over this sentence for its import presses heavily on some minds.

Farewell to each and all—and from now till we meet again next January let there be peace on earth, goodwill towards men.

## COUNTER PRESCRIBING.

THE subject which we name at the head of this article has always been regarded as a somewhat delicate matter by pharmaceutical writers; to coroners and medical journalists it is a standing bugbear, and is magnified into felony, treason, or murder, as occasion may require; while the outside world has an easy way of regarding it as a crime or a convenience under different circumstances. For our own part we see no reason to withhold a simple and honest statement of the position which we conceive the chemist and druggist may fairly take up on this matter, and we do see a reason to oppose such a statement to the careless and injurious remarks which so frequently emanate from coroners and juries, and which are calculated to bring the whole trade into disrepute.

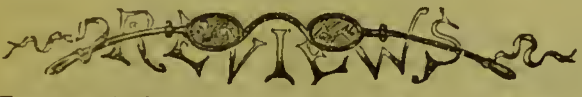
The following is the report of a little speech made by Mr. Richards, the deputy coroner for East Middlesex, at an inquest over which he presided on December the 22nd. He said:—"The extent to which chemists infringe the provisions of the Act is something frightful, having regard to the fact that the lives of many persons are annually sacrificed through the ignorance of these unqualified medical practitioners. The consequence is that at the last moment a real doctor is called in, and he refuses to certify, the result being a coroner's inquiry and the waste of the county money. The want of a public prosecutor is here most manifest, but until this crying evil becomes thoroughly exposed through the medium of the public press, we may look in vain for any proper measures being taken to check the frauds which are daily perpetrated upon the true medical profession by men who know as much of the human anatomy as my inkstand."

Passing by the curiously-expressed climax which seems to indicate that the coroner deplores the sacrifice of life because it causes a "waste of the county money," we are bound to admit that in the main we thoroughly agree with the remarks we have just quoted. No one more heartily than ourselves would condemn the vile quackery which so often and so shamelessly imposes upon the ignorance of the poor. We care not how severe is the punishment inflicted upon those who, by false pretences, and often by false titles induce others who have not the skill to detect the fraud, to trust in their hands their own, or their childrens' lives. But we do object and protest most strenuously against the insinuation, almost equally base, which would hang this practice round the neck of the chemists and druggists as a body. One of the Roman emperors or French kings, it does not matter which, expressed a regret that all his subjects had not one neck so that he might decapitate the lot at one blow. This desirable consummation is not necessary for the purposes of imaginative coroners or journalists, who bring our entire body into a common crowd, attach a head of their own manufacture, and then proceed to knock it about with most admirable energy, quite careless as to the accidental consequences of their blows.

But to come towards the point. We say that the unwarranted assumption of knowledge not possessed is most culpable. The man who buys the degree of M. D. and uses it without expressly stating how he got it is a cheat. So was the registered chemist who was lately hunted down in the North of Scotland, and who had imposed upon his neighbours by the addition of the letters M.B. and L.V.M. to his name, which meant, he explained in court, simply Medical Botanist and Licensed Vendor of Medicine. No chemist and druggist has the smallest particle of moral right to persuade patients to come to him under the mistaken belief that he is a duly qualified medical practitioner. By such a course he puts himself on exactly the same level of honesty as the self-styled witch or wizard who professes to tell fortunes by the stars. This logic is very A B C indeed, and we are quite certain it is merely the plainest expression of the sentiment of the vast majority of chemists and druggists.

But counter prescribing is not necessarily false assumption, and it is not so in 999 cases out of a 1,000. The most critical hair-splitter would hardly push his logic so far as to say that the chemist and druggist may not give his advice when he is asked for it, nor that he should not, anticipating that such and such questions may be put to him, prepare himself to give as good advice as possible as a matter of business. The expediency of giving such advice is another matter altogether. It is quite conceivable that a chemist and druggist may have a *clientèle* of physicians and their patients whom it would be folly to offend. He is perfectly justified in declining to offer any advice or opinion, but he need not, therefore, assume the broad phylacteries of the Pharisee and despise his equally honest neighbour, whose bread does not come to him so liberally buttered. The expediency of the practice in certain cases may be questioned; the strict morality and legality of the course is, we imagine, incontrovertible. On this question some of our old subscribers may remember that some ten years ago we took the opinion of Mr. Thompson Chitty, the eminent barrister, and that opinion published in our pages occasioned some lively disturbance at the time. Mr. Chitty was "of opinion that a chemist may in his shop so far prescribe for a customer as to advise with him as to the nature and quality and mode of application of the medicines which he is about to sell, and also as to which of his commodities will best suit the requirements of his customer. He may listen to his customer's statements as to the reasons for his wishing to become a purchaser, and may suggest to and advise him as to which of his commodities will be most suitable and beneficial to the customer, or may dissuade him from purchasing or taking that which a customer in his ignorance may have applied for. This advice is merely incidental to the sale and dispensation of the chemist's wares and drugs, and cannot, of course, be made the subject of a charge." There we have an admirable statement of the case from a legal point of view; in our own remarks we have considered it rather as a moral question.

If what is called counter prescribing were prohibited by law, and such law carried into execution, it would be neither more nor less than a national calamity. The barest attempt to frame any such law would be sufficient to convince any senator of its absurdity. The chemist and druggist is not a mere excrescence on society, resulting from modern luxury, as are, for instance, her Majesty's ministers, the legal profession, and the criminal classes generally. The physicians of ancient Egypt and Greece corresponded much more nearly to the pharmaceutist than to the physician of our own times. As surgeons have descended, or rather ascended, from barbers, so has the consulting physician gradually reached his present sphere, having gone through a process of development commencing with the druggist's counter. And now these professional gentlemen would willingly, if they could, forget and perchance obliterate the hole from whence they were digged. But the chemist and druggist is too necessary to the community to be removed, and if he is wise he will take care to establish himself more securely than ever, in the first place by rigidly abstaining from any practice for which he is neither qualified nor competent; and secondly, by studiously fitting himself the better to discharge those duties, among which counter prescribing may be fairly reckoned, which are justly his.



*" Trust him little who praises all; him less who censures all; and him least who is indifferent about all."*

## THE YEAR BOOK OF PHARMACY, 1871.*

THE second book of the chronicles of British Pharmacy comes to us this year in similar dress to its predecessor, but about 100 pages stouter. The defects as well as the excellencies of its predecessor have evidently been carefully noted by the present editor, Mr. C. H. Wood, and a very fairly close approximation to perfection in the production of a year-book is the result. Its six hundred and fifty pages record a mass of pharmaceutical facts and observations published between July 1st, 1870, and June 30th, 1871; and the possibility of collecting so much which to an important extent genuinely appertains to pharmacy is overwhelming proof that the provision of such a work has not been undertaken before it was necessary.

It was generally admitted that there were faults in the former volume, and it was universally conceded that they were due to the unpreventable circumstances of hurry which attended the compilation of that volume. That a careful arrangement of all the abstracts would mark the new volume was to be expected, especially if we took into consideration the leisurely process of publication; but it is certainly due to the editor to say that his classification of the papers could hardly be improved upon.

The first part of the book is a very able summary of the pharmaceutical chemistry of the year. This occupies fourteen pages. One hundred pages are then given to abstracts of papers on *materia medica*, more than two hundred to *pharmaceutical chemistry*, and about seventy to *pharmacy* Some odds and ends follow, described as *notes and formulæ*, and then a few reviews of books arbitrarily selected are entitled *Bibliography*. The one-third of the book which remains chronicles the proceedings, the papers, and the discussions at the Edinburgh conference.

We gladly record our sense of the great value of such an addition as this to our pharmaceutical literature. A careful recapitulation of a year's investigation such as the year-book presents, is invaluable to intelligent pharmacists. If a defect is to be named, it would be the almost entire absence of any shop pharmacy in the pages of the book. The division entitled "Notes and Formulæ" seems intended to supply this, but it does so very imperfectly, and we think the editor would do well another year to keep a sharper look-out than heretofore on the events of the commercial and inventive world. His own leaning is very evident in his introduction, towards the higher branches of chemical science.

The papers read at Edinburgh last August were of very unequal merit, and as a rule the discussions following them were of less pharmaceutical interest than has often been the case before. If a few more really hard-working members could be discovered, the Conference might largely add to its usefulness, by appointing one or two committees to watch some one or other department of pharmacy and report at the next meeting, as is done in America. Our readers are well aware of the importance and interest of those annual reports in the United States. We hope this suggestion may be considered worthy of consideration at some future time.

## THE LITERATURE OF POISONS.*

THERE is no part of the education either of a medical man or of a pharmaceutist of more essential importance than the acquirement of a certain degree of acquaintance with the symptoms of, and the antidotes to, the various kinds of poisonings. Apparently out of respect to the tender feelings of medical practitioners, toxicology is not included in the pharmaceutical curriculum. It is true that both in the chemical and botanical departments of the examinations, the acquaintance of the candidate with the tests for poisons in the first case, and with poisonous plants in the second, is regarded as a point of great importance. But it is doubtful, considering the immense importance of the matter to the public, whether the examinations should not include a special test of the candidate's readiness to *treat* any ordinary case of poisoning on an emergency. No pharmacist would desire the responsibility of treating such a case. He would far rather that a surgeon should be called. But it is a matter of fact that he is compelled to act sometimes, quite suddenly, and without the option of professional aid. His shop is always open and he is always at home, while the surgeon may be miles away, and on instant action may depend life or death. Humanity therefore demands, if in a formal manner society does not, that the chemist and druggist should be skilful to select, and ready to apply the right antidote when a case of poisoning occurs.

The literature of poisons therefore, should be of considerable importance. Orfila, Taylor, Christison, one or more of these authors should be carefully read and read again. Neither poison charts nor poison regulations are sufficient to take the place of these, nor could we conscientiously place Dr. Tanner's "Memoranda" by the side of these manuals. But we do it an injustice to compare it to them. As a minute condensation of the literature of poisons it is most excellent. All the main facts as to the symptoms, the treatment, and the chemical characteristics of the most important poisons are given in a clear and sufficiently ample manner in its pages, to fit the book for reference, and to a great extent for study. As we have intimated we think Taylor, or one of the other larger works should be carefully read first, and then Dr. Tanner's "Memoranda" would be most useful to the student to refresh the memory from.

The present editor whose initials only (A. S.) appear, has considerably improved the little book, and has certainly brought it abreast with the most modern knowledge. We are

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[*] Year Book of Pharmacy, 1871. With the Transactions of the British Pharmaceutical Conference, Edinburgh, August, 1871. London: Churchills.

[*] Memoranda on Poisons. By the late Thomas Hawkes Tanner, M.D., Third edition. London: Renshaw.

not inclined either to approve or condemn his attempt at a new classification of poisons, though we may express our comparative indifference to any system of classification whatever, believing as we do that students should regard poisons as judges do criminals, as individuals, and not as members of any particular class. Nevertheless as it is somewhat new, we conclude our notice by quoting this classification:—

> Sick of the old and clumsy classification of poisons into Irritants, Narcotics, and Narcotico-Irritants, the editor has endeavoured to form some more rational groups of toxic agents. These groups are, it is true, quite provisional; and they are somewhat similar to those adopted by Dr. Guy, in his admirable text-book on Forensic Medicine. They have, however, been worked out independently, whether they be worth anything or no. Briefly they are these:—*Corrosives*,—Simple irritants, mineral, vegetable, and animal; *Irritant Gases*; *Specific Irritants*,—mineral, vegetable, and animal; *Neurotics*, subdivided into Narcotics, Anæsthetics, Inebriants, Delirants, Convulsives, Hyposthonisants, Depressants, Asphyxiants; and *Abortives*.

## THE AMERICAN PHYSICIANS' DIARY.[*]

The American physicians are fortunate in being catered for by a firm so well acquainted with their requirements as Messrs. Tilden and Co. In a convenient pocket size (12mo) they are provided with a handsome diary which provides for a complete little manuscript library such as the doctor would do well to keep. The book contains over 300 pages on paper, which, though thin, is of excellent quality. In the first 100 pages is some well-compiled literary matter, including notes on new medicines, table of incompatibles, poisons and antidotes, doses, abbreviations, and many other useful subjects. Then follow more than 100 pages carefully ruled, described as Visiting List and Record, so arranged as to serve as a day-book and scientific record at the same time. We next have an Obstetric Record, and after that several blank pages, headed "Memoranda of Medicines Wanted." Memoranda for each month follow, then a Vaccination Record, Record of Deaths, Nurses—name and residence, List of Things Lent, Cash Record, Miscellaneous addressses and General Memoranda. The publishers deserve the highest credit for the excellent style in which they have issued this diary, and we think the medical profession at home may envy their American brethren this opportunity of keeping their daily notes, "decently and in order."

## OLIVER'S INDIAN BOTANY.[†]

Some time ago we had the pleasure to publish a review of Professor Oliver's "Lessons in Elementary Botany,"[‡] and it was then our privilege to point out the extremely sensible and interesting method which had been adopted in that little volume, and to show how excellently it was adapted to create an interest in the science which it introduced, and at the same time to gratifiy that interest. The book now before us (which is not quite new, bearing date 1869) is just simply an adaptation of his other work, by the same author, to the "Botany of India." In his preface the author admits that he has never visited India, but he has had exceptional opportunities of becoming acquainted with Indian plants, and his system of teaching is no less applicable there than here, except in this one respect, which he himself indicates. The plants indigenous to the country are not quite like the English buttercup in all its provinces. The shrub of the Himalayas may not flourish in Ceylon. And so it happens that in many cases it is difficult to discover satisfactory types of the different species of plants described. When this difficulty occurs, generally cultivated plants have been adopted as the types.

We cannot too much admire the thoroughly practical system of teaching which Professor Oliver adopts. The botanical student is not told indefinitely to go into the fields and gather some flowers. He is to go first of all and fetch such and such particular plants which are easily attainable; when he has got them he has a capable instructor with him, who shows him exactly how to take each to pieces; and lastly, his powers of observation are not only awakened, but also directed into the right channels. Then, but not till then, is he taught concerning the structure, the physiology, and the classification of plants. This plan is carried out with as much skill for Indian as for English students; and in that vast land so rich in vegetation, as in all other natural wealth, and whose natives are so generally endowed with the qualities which make up the best botanists, patience, manipulative skill, and rapid observation, it may be hoped that the science has a brilliant future before it, which Professor Oliver's work will help in opening.

## VOLUMETRIC ANALYSIS.[*]

To be the one recognised exponent of any branch of science in any language is a position well worth keeping, and we are not surprised therefore, that Mr. Sutton should prepare and publish a second edition of his well-known manual on Volumetric Analysis. One might have expected that the subject would have been tempting enough to induce other authors to come forward to expound the principles and processes of this interesting branch of chemical science. It is a tacit tribute to the excellence of Mr. Sutton's first edition that during the seven years that intervened between that and the publication of the second, not even a solitary attempt should have been made, as far as we know, to compete with him as an authority on the subject which he has made his own.

The introduction of a number of standard solutions for volumetric estimations, in the Pharmacopœia of 1864, undoubtedly gave an impulse to the practice of this most valuable method of analysis. Few of our readers, we presume, are unacquainted with the principle of volumetric analysis. The instance given by Mr. Sutton as an illustration is quite worth quoting, though, as the process should be familiar to every chemist. He supposes that it is required to ascertain exactly how much silver is contained in a shilling. The coin having been dissolved in nitric acid a solution results containing silver, copper, and probably other metals. The next step is to convert all that silver into the insoluble chloride. The addition of a standard solution of chloride of sodium effects this, and the practised analyst can readily tell the moment to cease adding the solution, when all the silver in the first liquid has been precipitated. The calculation is then most simple. He has used so much chloride of sodium, and that quantity represents so much chlorine; the chlorine has combined with the silver in the proportion of 35·5 to 108; the quantity of silver is therefore immediately deducible. The author truly adds:—"This method of determining the quantity of silver in any given solution occupies scarcely a quarter of an hour, whereas the estimation by weighing could not be done in half a day, and even then not so accurately as by the volumetric method." Thus, wherever it can be employed, it will be seen that the system of volumetric analysis has great economic advantages over the gravimetric process. It certainly requires manipulative skill and considerable practice before the results obtained can be confidently relied on, but it does not demand more skill, if so much, in its application as the more tedious method. But it is clear that a very accurate acquaintance with chemical reactions is essential to every operator who takes in hand compounds for volumetric analysis, for it is not a system of tests which can be applied indiscriminately by any means. A perusal of Mr. Sutton's work is convincingly suggestive of the practical difficulties which meet the analyst in all his steps.

The new edition of Sutton's "Volumetric Analysis" is so much enlarged and improved in all respects, that it is almost a new book. We notice that the author has to some extent reclassified his sections. The first four parts of the book describe the different processes which different circumstances require, and then follow descriptions of the special applications of each process. In the former edition some of these applications were included in the parts which treated of the processes. The new arrangement doubtless facilitates reference, but for the student at least, the former plan had some advantages. The systems of analysis described are

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[*] The Physicians' Diary for 1871. New York: Tildon and Co.

[†] First Book of Indian Botany. By Daniel Oliver, F.R.S., F.L.S. London: Macmillan.

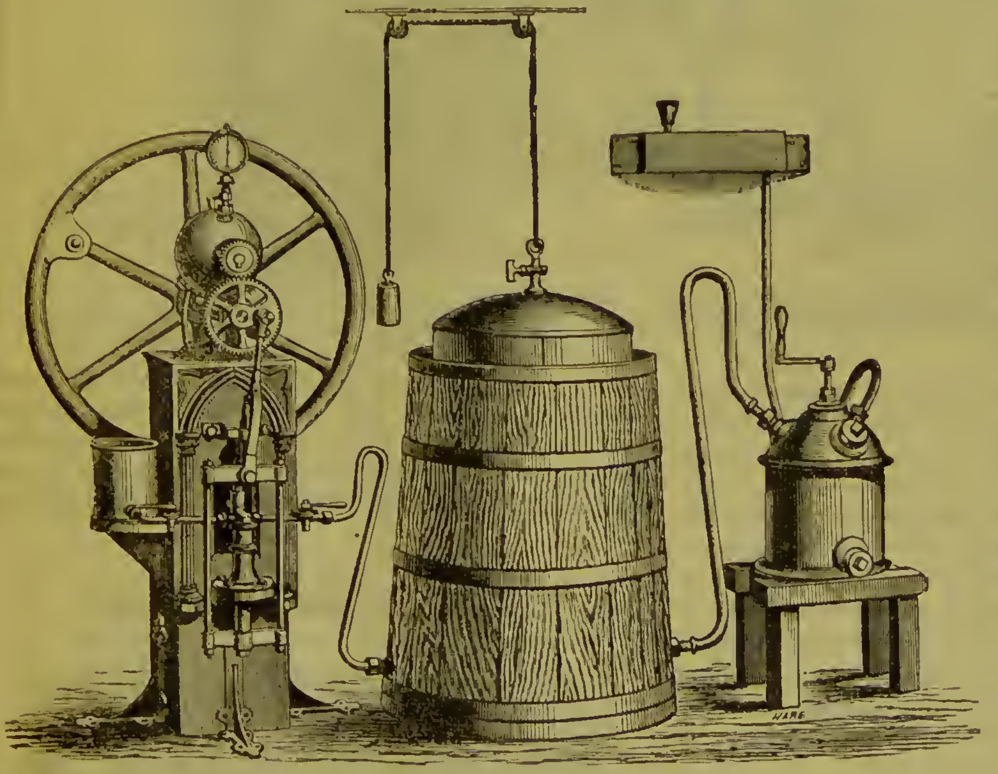
[‡] Chemist and Druggist, vol. xi. (1870), p. 208.

[*] A Systematic Handbook of Volumetric Analysis. By Francis Sutton F.C.S., Norwich. Second edition. London: Churchill.

(*a*) analysis by saturation, (*b*) analysis by oxidation or reduction, and (*c*) analysis by precipitation. The sections on the analysis of urine and soils, are especially likely to be useful to the pharmacist. The quantitative analysis of water and sewage is very ably treated, much of this part having been contributed in this edition, by Mr. W. Thorp, F.C.S., principal Assistant Chemist to the Royal Commission on the Pollution of Rivers. Mr. Sutton himself adds a description of Wanklyn and Chapman's process. The last part of the work, which is entirely new, is a description of the Volumetric Analysis of Gases, written by Mr. Herbert McLeod, F.C.S., Professor of Chemistry and Experimental Science, at the Indian Civil Engineering College. The chemist who anticipates in this section an almost incomprehensible mass of figures and fractions will be agreeably surprised by the singularly lucid manner in which Professor McLeod unfolds his subject. A few errors have escaped revision, among which may be mentioned one or two instances where the reference to other sections is incorrect. On page xiii. too, among the contents, we find sulphuric acid and sulphates, and nitric acid and nitrates headed *alkalies*. But the work as a guide to the student, and more especially to the practical chemist, is an invaluable one, and in its new dress is likely to keep off all competitors for many years to come.

## BARNETT'S SODA-WATER MACHINE.

THE several makers of soda-water machinery have almost all introduced within the past few years apparatus of reduced size and capacity and lower in price, generally suited to a trade of a retail but still somewhat considerable character. We have described most of these as they have been brought out, and now we illustrate the last which has appeared, constructed by Mr. S. Barnett. This sells for £28, and is quite complete with the exception of a bottling apparatus, which will be required unless the services of a professional bottler can be obtained. A space of about six feet by four is required for this machine, and it is reckoned to be capable of producing about thirty-five dozen a day. It is worked by a "Bramah" pump made of gun-metal, and a dial pressure indicator is attached to the cylinder. As a suggestive consideration to some of our readers, we quote the maker's calculation of the nett cost of a gross of soda water: "Corks (one gross) 2s. 2d.; sulphuric acid, 4 lbs., 6d.; tinned wire, 2d.; whiting, 1d.; soda, 10-grs. to a bottle, 1d.; total, 3s., or one farthing per bottle."



## MESSRS. FIELD'S NOVELTIES AND MANUFACTURES.

THERE is no firm in London—and that is saying a good deal — that has brought more skill, inventive genius, and enterprise to the development of business, than the well-known house of J. C. and J. Field, of Lambeth. Messrs. Field have two factories, one at Lambeth, where the soaps and all the varieties of candles are manufactured; the other is at Battersea, which is entirely devoted to the preparation of Ozokerit. Our readers will remember that this latter place was lately the scene of a brilliant conflagration. Messrs. Field immediately set to work to repair the disaster, and their new works will be much more extensive and convenient than the old ones.

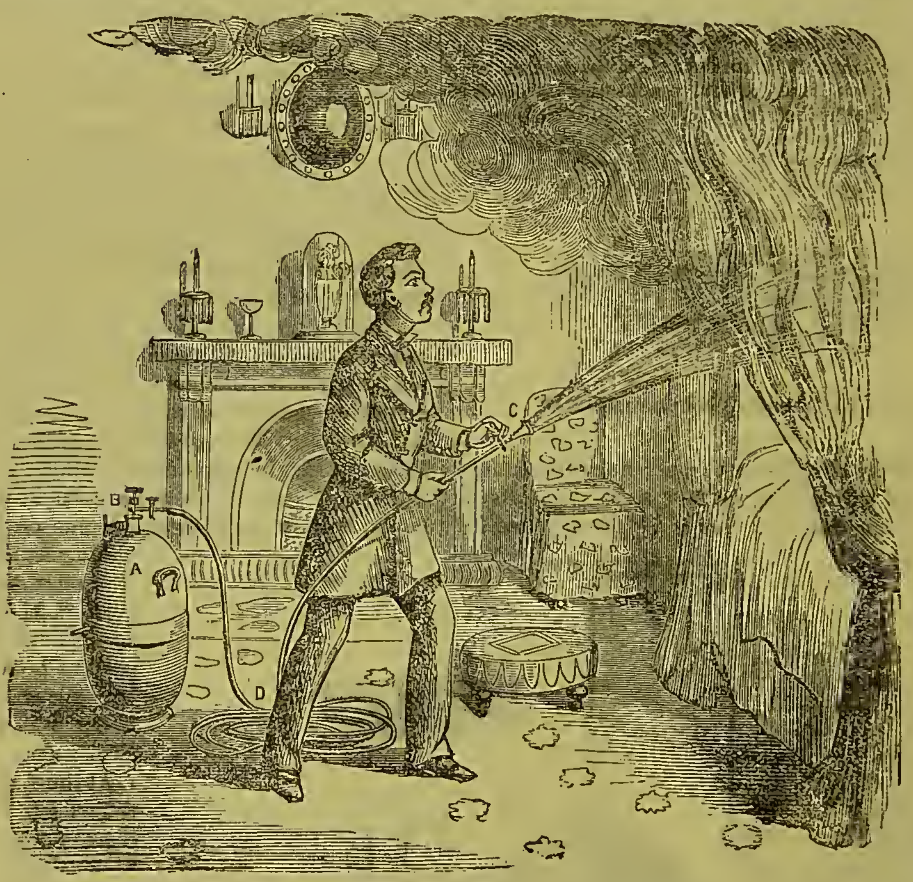
The beauty, cheapness, and illuminating power of the ozokerit candles makes one almost wonder that any other kind should be in demand at all. For our own part we certainly regard them as the *ne plus ultra* of the candle trade, and if we may be permitted to advise in such a matter, we should strongly recommend many of our readers to take them into stock. They are sold in handsomely labelled boxes, and in no respect infringe on the dignity of any pharmaceutical establishment. The oil extracted from the ozokerit in the process of manufacture is likely to become an important product. It is a splendid burning oil, and of course its use is free from the danger attendant on paraffine.

At the Lambeth works are seen the many operations and processes for the production of the various forms of candles. Some have to be turned in lathes to produce the fanciful shapes which they are made to assume. The costly wax, the handsome sperm, the fascinating but not very trustworthy paraffin, and the solidly beautiful ozokerit candles, are here being turned out in vast quantities. The makers are now introducing several varieties of candles so made as to guard against the ugly guttering which has so often been a nuisance. Some are fluted all round, and others are of the cable pattern, which is simply a spiral fluting. Both of these are handsome to look upon. The channelled pattern is simply a candle with concave sides, which is not so good-looking. But the newest device against guttering is that which is employed in making the patent Aërated Candles. Three longitudinal passages are made through the candle, and these communicate with the outside world by means of several lateral apertures. This not only prevents guttering, but it accomplishes a still more important end, namely, to afford a constant and abundant supply of fresh air close to the flame. A more brilliant light is of course secured by this construction.

Field's United Service Soap is a part of the stock of every chemist, and their Spermaceti tablets should be also. These are delicately perfumed, and wherever introduced become favourite detergents for the lily fingers, which make such an excellent background to diamonds, rubies, and emeralds.

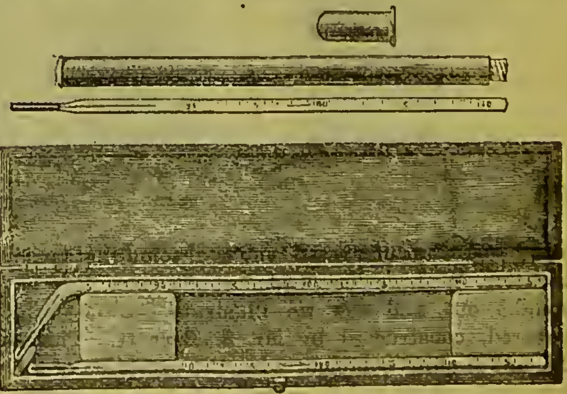
## NEW FIRE EXTINGUISHER.

The experience obtained by Messrs. Dows, Clark and Co. as manufacturers of soda-water machinery seems to have suggested a practical and promising suggestion to their minds, Their new fire extinguisher is just a cylinder of soda water. containing, however, soda enough to make up for the many samples which contain none. The idea is to keep this cylinder always filled and ready for use in some central part of the house, so that a ready means of extinguishing a fire which might soon become alarming shall be constantly at hand. The following is a description of the apparatus:—A is the cylinder containing a solution of carbonate of soda and carbonic acid gas. This is charged up to a sufficient pressure to carry a stream from thirty to fifty feet. The cylinder is made of copper or iron, as desired, and can be placed in a cupboard or other convenient place. B is a cock for turning on the solution, which takes but a moment. D is a strong hose of sufficient length to lead from one room to another, which obviates the necessity of moving the cylinder. C is a cock so arranged that either a straight stream can bo thrown from thirty to fifty feet or more, according to the pressure in the cylinder, or a fine spray, as shown in the illustration. By the use of carbonate of soda in the solution a much smaller supply of liquid is necessary to extinguish a fire than if plain water were used. The gas serves a double purpose. It helps to extinguish the flame, and gives the propelling power. Of course the necessarily limited capacity of this apparatus will occur to everyone as an objection, but it should be borne in mind that the prompt application of a few gallons of liquid at the commencement of a fire would often save an immense amount of property. Messrs. Dows, Clark and Co. supply the solution as well as the apparatus.



## EDE'S CLINICAL THERMOMETERS.

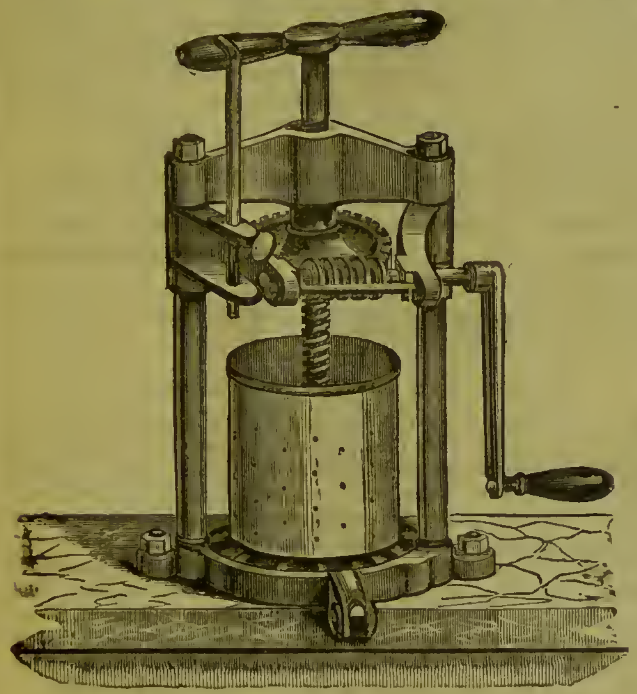
Medical men have rather suddenly discovered the importance of taking careful and periodic observations of the temperature of the human body in many complaints. To take the temperature with many of them, is almost as much a matter of course as to feel the pulse and look at the tongue, and the indications of the thermometer are extremely delicate. The normal temperature of the human body at completely sheltered parts of its surface, is about 98·4° Fahr.



In the tropics it is one degree higher. A variation of more than one degree in either a higher or a lower direction is an indication of disease, and especially in the case of fevers is the most delicate index attainable. These thermometers of Ede's are very carefully made, and neatly put up in morocco or other cases for the pocket. The case contains one thermometer with a curved bulb in order to use at the armpit; another, a straight one, registering the temperature, and which can therefore be applied to any part of the body. Our readers with a good *clientèle* of medical men might introduce these with advantage.

## DOUBLE-ACTION TINCTURE PRESS.

The application of mechanical genius to the construction of tincture presses has just borne another fruit. Our engraving represents a new one, introduced by Messrs. Lynch and Co., of Aldersgate-street. It is as moderate in price as it is ingenious in construction. After the utmost pressure has been applied in the usual manner by means of the downward screw, the power can be very considerably increased by the employment of the side lever, which works by a screw, on a cog-wheel, and thereby extends the spiral screw, which applies the pressure. This power doubtless increases the magnitude of the force employed, but we cannot understand on what theory the inventors claim that the pressure is thereby magnified *six-fold.* A small hydraulic press was introduced by Messrs. Hayward Tyler and Co., and described in these pages in October last. The calculated increase of pressure which the hydraulic power was said to produce was to a threefold extent. We can hardly suppose that this mechanical arrangement, though it is certainly ingenious, will exert twice the pressure of the hydraulic lever.



**Removing the Grease from Wools.**—This has been usually effected by the use of soap or putrified urine, and attempts have been unsuccessfully made to substitute carbonate of ammonia for those reagents. The author gives the proportions of a mixture, which he claims accomplishes the desired result, as follows:—

| | | |
|---|---|---|
| Soda | 20 | Kilogrammes. |
| Oleine | 5 | " |
| Sal ammoniac | 5 to 10 | " |

The amount of sal ammoniac required, varies with the quality of the wools, fine ones required the largest amount. Other mixtures are described, which are stated to be more expensive, or more liable to injure the wool.

## NOTES AND QUERIES

*Queries received after the 10th of the month cannot be attended to in the immediately succeeding issue. The Editor will endeavour to obtain any required information for correspondents, but he cannot undertake to send answers through the post.*

**Preliminary Examination.**—We are asked so frequently to give advice respecting desirable books to aid neglected home and early teaching that we are compelled to answer in some way. We entirely object to recommend any particular manual, as we deplore the notion that a certain number of pages, learnt by heart from any handbook, shall be accepted in lieu of practical knowledge. Yet the following list (without disparagement to others) will be found of service:—

The "Latin Primer," now almost universally used, many of the standard exercise books having been adapted to its rules.

Dr. William Smith's "First Latin Course" (Murray) is very generally selected for beginners. The later editions have, as an appendix, the Accidence arranged as in the Public School Latin Primer.

Mr. H. Musgrave Wilkin's "Latin Prose Exercises." There are two books of them specially adapted to the Syntax of the Public School Latin Primer.

Arnold's "Historiæ Antiquæ Epitomæ."

So many English Grammars and treatises on Composition exist, that it is difficult to decide in their favour.

Morell's "English Grammar and Analysis" is good. Excellent exercises are attached. The Introduction is called, "Essentials of English Grammar," and is quite elementary.

Latham's "English Grammar," a delightful book, is too advanced, and hardly as well adapted for preliminary studies.

With regard to Arithmetic, Introductions abound. Colenso is a favourite, but the name of the rest is legion. From the above list probably the apprentice or assistant may find his wants supplied.

*Mr. R. G. Jones (Rye).*—Our correspondent informs us that at a recent preliminary examination two Latin prescriptions were submitted to the candidate. We quite agree with him that it is not by any means fair to include the reading of prescriptions in the preliminary examination. The Latin test should be such as would show enough proficiency to read Cæsar intelligently. It is quite possible that a scholar who would find no difficulty in Horace or Livy might get stuck at many a modern prescription, and it should be remembered that the "preliminary" does not—or rather, should not—presume any previous technical knowledge.

*B. P. (Dundee).*—Can anyone tell our correspondent the origin of the term "dog Latin"? Our own impression is that is a corruption of "doctor's Latin."

*Christmas Goose.*—Horniman's address is 32, Wormwood-street, London, E.C.

*Nemo.*—Pharmaceutical chemists only (that is, those who have passed the major examination of the Pharmaceutical Society) are exempt from service on juries. We never heard that this included exemption from th appointment to the collectorship of assessed taxes, but it is possible th the latter official, and perhaps the overseers also, are selected from th same list from which the jurymen are chosen, and that therefore a pharmaceutical chemist is practically exempt from all these duties. Can any correspondent learned in parish matters give us correct information on the selection of the above? In this matter pharmaceutical chemists must not be confounded with merely "members of the Pharmaceutical Society," who, as such, are not exempt.

*Mr. W. Hardy*, Stockton-on-Tees, would be glad if any of our correspondents, having had practical experience, would inform him which is the best and cheapest apparatus for measuring paraffin oil.

*Delta.*—If you want to become scientifically acquainted with botanic practice we think Henfrey's "Elementary Course of Botany" (12/6) would best suit you. Brook's "Herbal" (5/6) is reckoned the best practical work on herbs and their uses.

*E. H. F.*—Moore's "Diseases of Dogs" (6/) is considered the standar work on the subject. Or you will find Meyrick's "House Dogs a Sporting Dogs" (3/6) a very useful treatise, which touches their points and breeding and such other matters as well as their diseases.

### COOPER'S SINAPINE TISSUE.

This is an article which chemists should bring under the notice of their customers. Surgeons, too, would do well to be acquainted with its merits. We have recently made a very careful examination of the tissue, and we are confident that it is what it professes to be, a genuine preparation of mustard. Such an article is frequently of great service in families, and would be used a dozen times when the trouble and mess of a mustard poultice would hinder its application.

The following is sent to us as a specimen of literature from the backwoods of North Hants :—"6 penyworth of balsam pivy. 4 of sweet nintor. 2 of Kubits powder. 3 peneth of strong working pills. do not mix the powder with the lickwead."

### CHEMICAL CLASSES.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

MY DEAR SIR,—It was with much pleasure, I read the article in your edition of the 15th of December, touching the forming of chemical classes by apprentices, but I, as an apprentice, think the chief difficulty that stands in the way was not mentioned, viz. :—Are masters as a rule willing that their apprentices should associate together? In my opinion they are not, and I think in small towns we must first have the chemists themselves a little more sociable, before their apprentices can congregate together.

I am, my dear Sir,
Yours very truly,
CECIL.

[We would suggest to our correspondent, presuming that his difficulty is an experimental one, that it is just such an one as is worth conquering. If he waits until a broad spirit grows out of a narrow one spontaneously, his prospect of taking part in a chemical class is extremely remote.—ED. *C. & D.*]

## Correspondence.

### TAXATION.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—May I ask you to insert the following letter which I have addressed to Mr. Lowe, the Chancellor of the Exchequer.

I am, etc.,
ST. SWITHIN WILLIAMS.

TO THE RIGHT HON. THE CHANCELLOR OF THE EXCHEQUER.

SIR,—It is my deliberate intention not to pay the income tax. In a humble way I shall do what Hampden did about the ship money: I shall take care not to break your laws, but within the limits of your laws, I shall withstand you to the utmost.

I refuse to pay your demand for the same reason that I should resist the demands of a highwayman or a burglar. Archbishop Whateley reminds us, that it is only so far forth as the taxation of a country is a fair charge for the services rendered by the government that taxation differs from avowed robbery. Now is forty-three millions a year a fair charge for the services rendered to us by the tax-consumers? Every one knows that all the real good you do for us could be done for very much less than forty-three millions a year. This is admitted by every minister when out of office. My own conviction is that twenty millions a year of your taxation is unnecessary: to that extent your taxation is robbery.

In return for shameless taxation, you fail to perform the first duties of a government. So ignorant are you of the art of war, that ten thousand British soldiers, when led by you, are no match for a handful of Maori barbarians. You cannot even tether our troop horses. Our seamen you run aground and drown. Hundreds of thousands of labour's hard earnings you fling into the waves at Alderney; but our commercial ports, on whose safety our food depends, you leave, with sinister design, open to bombardment. Your miserable allowance to witnesses and prosecutors in courts of justice compels policemen, and all prudent men to shut their eyes when crime is committed. In order to check the growing wealth and power of the industrial and commercial classes, you contrive insolvency and bankruptcy laws which enabled the extravagant and dishonest to defraud the industrious and thrifty of thousands of millions.

It is not because it is the income tax that I refuse to pay you. I wish that I could raise the issue on some tax still more iniquitous: such as the millions you snatch from poor people's necessaries, their tea or sugar. As I neither import nor make taxed articles I can challenge you only on a direct tax.

Nor do I wish to shirk my duties as a citizen: quite the contrary. When the Crimean war had proved to us the imbecility of your standing armaments, I was one of the first to become a volunteer, a volunteer in earnest. If I save this income tax from your clutches, I shall offer it as a donation to societies for promoting political reform: the Financial Reform Association, the Liberation Society, the Representative Reform Association, etc.

Your fallacy that if I pay you less some one else must pay you more, deceives no one who understands your expenditure: you just squander all that you can lay your hands on. True you apply a little, now and then, to a sham reduction of the national debt; but you run us into debt again at the first opportunity: so that our national debt is about as much to-day as it was forty years ago. Could you rob us of another ten millions a year you would govern us no better; you dare not rule us worse, if we saved twenty millions a year from your bottomless pit.

Until members who are, or have been, tax-consumers, or whose father, sons, or sons-in-law are tax-consumers, are excluded from voting on questions of taxation, it is absurd to look to Parliament for a reduction of taxation. For you make it the interest (pecuniary or social) of a majority in both Houses to increase the expenditure. A national refusal to pay unnecessary taxation is our only remedy; and it is a sure one. You tried to tax our American brethren against their will, and you failed. The Irish peasantry got rid of your church cess and your tenant's tithes by dogged non-payment. A few dissenters steadfastly refused to pay your church rates, and church rates had to be abolished. You can rob us of our chairs and tables, but they will be of no use to you if we we will not buy them of you.

In the hope that others may be induced to follow my example, I shall publish this letter.

I have the honour to be, Sir, your faithful servant,
Oxford. ST. SWITHIN WILLIAMS.

### THE SISTER PROFESSIONS.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—In these days of educational equality, will it surprise you to hear that only one chemist can prepare a prescription for Linimentum Belladonnæ et Chloroformi (Squire's formula), and that a medical man on the royal staff writes so that his patients shall go—and indeed directs them to go—to the royal chemist for it? Are we to understand by this that the Linimentum Belladonnæ trick is again being practised, pending the issue of the next edition of the British Pharmacopœia, or does this formula, which is common to all chemists, involve some secret beyond our comprehension? I much fear that our ethics and education are drifting us into a system of trading somewhat of a scheming character.

I am, your obedient servant,
WILLIAM DICKINSON.

Bayswater, January 11, 1872.

## Trade Memoranda.

OUR Australian advices report that Mr. E. Rand (chemist of Ballarat, Victoria), has called his creditors together. His liabilities are about £4,000, but his estate promises a good realization.

The chemists and druggists of Hull have determined with the new year to introduce an important and popular reform, viz., to close their places of business at eight o'clock each evening, Saturdays excepted.

We again acknowledge with pleasure, the receipt of Mr. T. P. Wood's Chesterfield almanac for 1872. It is well got up, and contains a mass of all sorts of information. Among the rest is an article on "Cups and their Customs," which gives the recipe for many a heart-warming beverage from the wassail bowl down to brandy cocktail.

The *Oil Trade Review* states in reference to the uses of yellow vegetable grease, that it has recently become the raw material for the ornamental lubricants which are bottled, potted, and labelled as "bear's grease," marrow oil, and pomades of all kinds.

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In answer to an inquiry from Mr. J. Milborne, of Frome, the Lords of the Privy Council for Trade have put on record that "they are not aware of any law which imposes a penalty on a grocer in Great Britain for selling sugar and including the weight of the wrapper."

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Messrs. James Bass and Sons, of Hatton-garden, who have been well known for many years as manufacturers of concentrated infusions and other pharmaceutical preparations, have entirely disposed of their business to Messrs. Barron, Squire, and Co., of Bush-lane. This last-named firm continues all the manufactures.

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A firm of wine merchants at Worcester, recently sent out a number of invoices by the halfpenny post. On some of these one penny was charged on delivery, the local postmaster alleging that the words "bottles to return" appearing on the accounts, constituted them letters. After a protracted correspondence, they were informed by the Postmaster-General, that the extra charge was an error.

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In a return published by Government of joint-stock companies, we notice some information is given with respect to the Liverpool Apothecaries' Company (Limited). The object of this enterprise is to carry on the business of chemists' and druggists; and the company was registered on the 18th August, 1870. Its nominal capital is given as £1,200, divided into 100 shares. The total amount of calls received is stated at £671; and the number of shareholders in the company at the date of last return is described as seven only.

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The Nimble Sixpence.—During the month of December, Messrs. Goodall, Backhouse, and Co., of Leeds, sold no less than 201,024 bottles of their tremendously-popular Yorkshire Relish. The price at which it was introduced has to some extent influenced this success, but not wholly. There is something in a name, and the democracy who patronise this article have evidently perceived that *relish* is a prettier word than the somewhat slangy *sauce*.

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Wolverhampton Union.—Drysaltery: Mr. William Connell's tender accepted—viz., arrowroot 4d. per lb., pepper 10d. per lb. Colman's D.S.F. mustard 1s. 2d per lb., nitre 6d., starch 4d., blue 8d., linseed-meal 2d., blacklead 4½d per lb., vinegar 10d. per gallon, blacking 4d. per lb., white lead 4d. per lb., paints 5d. per lb., sweet oil 4s. 9d. per gallon, boiled oil 4s. per gallon, linseed oil 3s. 9d. per gallon, turpentine 4s. 9d. per gallon, whiting 2s. 6d. per cwt., trusses (single) 1s. 9d. each, double 2s. 9d. each, emerald green 1s. 6d., 1s. 3d., and 1s. per lb., Brunswick green 4d. and 6d. per lb., ultramarine blue 2s. 6d., 2s., and 1s. 6d. per lb , lime blue 4d per lb., vermillion 4s. per lb., umber 3d. per lb., yellow ochre 3d. per lb., chrome 2s., 1s. 6d., and 1s. per lb., Indian red 10d. per lb., Derby 1s., red lead 4d., rose pink 6d. per lb., Venetian red 2d per lb.

The tender of Mr. Sneyd, of Walsall, has been accepted for the supply of trusses to the Union; double at 3s. and single at 1s. 6d.

The tender of Mr. J. C. Maw, chemist, of Sheffield, has been accepted for the supply of drugs and chemicals for the use of the inmates of the workhouse in that town. The prices of the various articles are not published.

The guardians of the High Wycombe Union have accepted the tender of Mr. S. C. Furniston, chemist, for the supply of the following articles to the union:—Cod-liver oil at 9s. per gallon, and quinine at 9s. per ounce.

Messrs. Wright, Sellors, and Layman, wholesale druggists, Southwark-street, on the completion of stock-taking, invited their *employés* on the evening of the 6th to a very substantial dinner at the Bridge House Hotel, London-bridge. Thirty-six sat down to the repast, which was admirably supplied by Mr. Spencer, the proprietor. After the cloth was removed, toasts, both loyal and complimentary, were given, which met with hearty responses from all present. The evening was enlivened by singing the national airs, and other songs, well rendered by some of those in the employ of the firm. The chair was occupied by Mr. W. V. Wright, the senior partner, who, together with Messrs. Sellers and Layman, offered some very encouraging and appropriate remarks, which were well received, and applauded by the company. Altogether the evening was a very pleasant one, and was fully appreciated as an effort to sustain that good feeling and mutual interest which should ever exist between employers and employed.

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## Exchange Column.

Our new subscribers will notice the Exchange Column for the first time, and will, we trust, watch it carefully throughout the year. It is a comparatively new feature of the Chemist and Druggist, and we claim for it practical utility as well as interest. It may be regarded as a pharmaceutical "old curiosity shop." Chemists who possess stock for which there is no demand in their vicinity may transfer the same to their brethren of other parts, where such a demand does exist. In this reciprocity, business relations lose much of their austerity, and a pleasant social feeling is engendered, whilst mutual benefit accrues. The terms of insertion are very moderate, and we do hope our subscribers will combine to extend this interesting feature of the journal.

Revised Terms.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the publisher of the Chemist and Druggist, and all correspondence relating to it must be addressed to "The Publisher of the Chemist and Druggist, Colonial Buildings, Cannon-street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

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### FOR DISPOSAL.

Erichsen's "Surgery," in good condition. Cash or Exchange offers. 22/469.

Lescher's "Elements of Pharmacy," Burke's "French Revolution." Both in good condition. 17/469.

Wanted an offer for 500 dozen (or less) Loofers, or Vegetable Indian Flesh Rubbers. Apply to G. Dowman, Chemist, Southampton.

Smith's "Pharmaceutical Guide," Owen's "Manual of Pharmacy," Smith's "Introduction to Botany," "Martin Chuzzlewit" (Charles Dickens's Edition). "Alpha," Post-office, Sparkbrook, Birmingham.

Rickett's Patent Gas Stove, scale as Fig. 5, Gas Lamp and Bracket, Fig. 5 (Maw's Catalogue); Seven pounds Putty Powder, Trusses slightly soiled. Cash offers wanted. Ford, Pontypool.

Amateur Printing Press, to print 9 by 7, with Type, Ink, Ink-roller, Quoins, Furniture, Reglet, Slabs, Type Case. Suitable for bills, cards, circulars, &c. 21/. B. Wyles, Bourn, Lincolnshire.

"Pharmaceutical Journal," Vol. I. to X., from 1841 to 1851, bound; Vol. III. to XI. inclusive, from 1861 to 1870, unbound. Cash offers. W. S., 60, Lord-street, Birkenhead.

Offers for the Chemist and Druggist for 1867, 1868, 1869, 1870, 1871. Warwick, Chemist, Hartlepool.

Gasholder, Pepy's three Gallon, 15s. Case of Dental Instruments, 30/—a bargain. Conjuring Tricks for Chemical Apparatus or anything useful. 3/469.

At Half Price, nine Baud's Iodine, nine Baud's Iron, fourteen (assorted) Baudine, two Brompton Cough Specific, one 11/ Roos' Gutta Vitæ. Butler, Chemist, Tunbridge Wells.

Glass Case, 43in. high, 46in. wide, 40/. Counter Case, bent plate-glass, 9in. wide, 4½ft. long, 6in. high, two fall-doors at back, 32/6. Quotations are for cash or barter. J. Floyd, Wholesale Druggist, Bury St. Edmunds.

Owen's "Compendium," Receipts and Processes, Pharmacy, Chemistry, Confectionery, Perfumery, Cosmetics, Homœopathy, Essences, Wines, latest Discoveries and Improvements. New impression, 26 stamps. "Invaluable" Owen, Chemist, Leytonstone and Stratford.

Twenty-five 2-gall. Stoppered Macerating Bottles, black, gold labels; twenty-four quart Stoppered Tincture do., labelled G., do. W. M.; twenty-four 1½-pint Stoppered Tincture, labelled G., do. W. M.; twenty-four 1-pint Stoppered Tincture, labelled G., do. W. M.; twenty-four Cut Label Acids, one Show Jar (Magnesia), two Globes and Stands, one large Double Plate Glass Case for Counter (Back Shelves), Dispensing, 5 ft. 4 in. by 3 ft. 4 in. Apply, H. M. Pugh, Chemist, Festiniog.

## WANTED.

"Pharmaceutical Conference Reports," 1864 to 1868. 17/469.

A Patent Measuring Apparatus for Paraffin. 13/469.

"Fownes' Chemistry." 9/469.

Edwards's Economising Gas Inhaler. State price and condition. 3/469

Show Bust of Hahnemann and "Homœopathic Medicines" Tablet. Particulars to Cole, Chemist, Stoke Newington.

"Pharmaceutical Journal" every Wednesday. State particulars. W. Graham, Dalbeattie.

Mohr and Redwood's "Practical Pharmacy." J. Kemble, St. Austell.

Chemical Balance to turn with 1-200th of a grain. Apply to Shrubsole, Chemist, Chester.

One of Bushby's Patent Pill-making Machines, second-hand, in good condition. Inquire J. Brumby, 13, Spring Bank, Hull.

Two Upright Glass Cases, as Figs. 40 and 13 Maw's List, 4 × 4 gall. Show Carboys, 2 Specie Jars, all in good condition. Coatsworth, Chemist, Darlington.

All numbers of "Pharmaceutical Journal" containing Preliminary Examination Papers. State price. E. Cardwell, Bradbury's, Lytham, Lancashire.

Upright Glass Case about 4 feet long 2 feet high 5 or 6 inches wide, also one or two Show Jars. Charles Farrer, Castleford.

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## PATENTS

The following list has been compiled expressly for the Chemist and Druggist, by L. de Fontainemoreau & Co., Patent Agents, 4 South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 33, Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

2267. J. Townsend, of Glasgow. Improvements in treating phosphates and other substances containing alumina, and obtaining products therefrom. Dated 29th August, 1871.

2591. H. Stapfer, of Manchester. Improvements in the filtration or separation of mineral or other oil from oleaginous matter or from matter or compounds containing oil, and in apparatus therefor; applicable also to the filtration of some other matters. Dated 2nd October, 1871.

2983. A. M. Clark, of London. The manufacture of solid tribasic phosphate of ammonia applicable for various useful purposes. Dated 6th November, 1871.

3073. F. A. Sawyer, of Massachusetts, U.S.A. An improved process or means of restoring spent indigo so as to enable it to be used or utilized to advantage. Dated 15th November, 1871.

3080. W. Henderson, of Glasgow. Improvements in obtaining chlorine and manufacturing bleaching powder, and in apparatus for those purposes. Dated 15th November, 1871.

3143. J. Hall, of Newcastle-on-Tyne, and T. Gibb, and C. Gelstharp, both of Jarrow-on-Tyne, Durham. Improvements in the manufacture of soda and potash, and of the carbonates thereof. Dated 21st November, 1871.

3156. J. Blick, of Camden Town. An improved apparatus for impregnating atmospheric air with hydrocarbon vapours for heating and lighting purposes. Dated 22nd November, 1871.

3180. J. V. P. Lagrange, of Paris. An improved process of purifying and clarifying saccharine juices and syrups. Dated 23rd Nov., 1871.

3182. J. Johnson, of Addlestone, Surrey. Improvements in the construction of bedsteads, adapted more particularly for invalids. Dated 24th November, 1871.

3183. A. Annandale, jun., of the Beltonford Paper Mills, Dunbar, N.B. Improved means or processes for treating waste acids and alkalies resulting from the preparation of ligneous fibres or bodies used in the manufacture of paper or paper pulp. Dated 24th Nov., 1871.

3241. J. Hodges, of Wandsworth. Improvements in purifying paraffin. Dated 30th Nov., 1871.

3244. J. Leetch, of Broadley-terrace, Blandford-square. An improved detergent compound. Dated 30th Nov., 1871.

3249. L. Fortoul, of Paris. Improvements in treating fatty bodies. Dated 1st December, 1871.

3257. C. Nightingale, of Tynemouth, Northumberland. An improved mouthpiece for protecting the wearer against atmospheric influences. Dated 1st December, 1871.

3261. J. J. Knight, of Penketh, near Warrington, Lancaster. Improvements in the manufacture of caustic soda and potash, carbonates and bicarbonates of soda and potash, phosphates of soda and potash, muriatic acid, and chlorine. Dated 2nd December, 1871.

3262. H. Brooks, of Cumberland-market, Regent's-park. Improvements in apparatus used in connection with infants' feeding bottles. Dated 2nd December, 1871.

3311. H. Larkin, of Theydon Gernon, Essex, and W. White, of Hampstead. Improvements in the reduction of certain metallic chlorides. Dated 7th December, 1871.

3366. W. R. Lake, of London. Improvements in galvanic batteries. Dated 12th December, 1871.

Letters Patent have been issued for the following:—

1460. J. L. Pulvermacher, of Regent-street. Improvements in the construction of electric, galvanic, and magnetic chains, bands, and garments, and in means of applying such to the human body for treating diseases and complaints, and for other purposes; also fasteners and electro-conductors in connection with such chains and bands. Dated 1st June, 1871.

1531. C. Crockford, of Holywell, Flint. Improvements in the production of the alkalies and their salts. Dated 9th June, 1871.

1579. G. E. Marchisio, of Baker-street, Portman-square. Improvement in extracting olive oil, and in the machinery or apparatus to employed therein. Dated 14th June, 1871.

1589. J. B. Spence and P. Dunn, both of Manchester. Improvements in the treatment of natural phosphates of alumina, for the purpose of obtaining sulphate of alumina and phosphoric acids or compounds thereof. Dated 15th June, 1871.

1642. E. Konigs, of Westhofen, Westphalia, and J. Henderson, of Glasgow. Improvements in obtaining sulphate of soda, hydrochloric acid, chlorine, and other products. Dated 22nd June, 1871.

1725. T. J. Smith, of London. An improved process for the revivification and recovery of the potash, soda, and organic compounds remaining in lyes and soaps after they have been used for the treatment of woody and other fibre and fabrics. Dated 3rd July 1871.

1834. A. Tessier, of Granville, La Manche, France. An improved process of manufacturing soda from wrack. Dated 13th July, 1871.

1859. A. G. Brown, of Trinity-square, Southwark. Improvements in means of disinfecting water-closets, urinals, as well as gutters, conduits, and apparatus therefor. Dated 17th July, 1871.

2008. W. Weldon, of Putney, Surrey. Improvements in obtaining sulphur from sulphuretted hydrogen, and in manufacturing soda and potash. Dated 31st July, 1871.

2884. P. Spence, of Manchester. Improvements in the manufacture of alum, and in obtaining by-products therefrom, suitable for manure. Dated 23rd Oct., 1871.

2960. A. M. Clark, of London. Improvements in apparatus for distilling naphtha and other hydrocarbon liquids. Dated 3rd November 1871.

Specifications published during the month. Postage 1d. each extra:—

1871.

734. W. Purvis. Medicinal biscuit. 4d.
858. J. Fordred. Refining paraffine and spermaceti. 10d.
972. D. Jackson. Manufacture of sulphuric acid. 1s. 10d.
1067. T. Rowan. Treating and applying manganese compounds. 4d.
1084. R. Irvine and another. Treating phosphatic materials. 4d.
1179. T. Schwartz. Treating wood to obtain acetic acid, &c. 4d.
1181. A. M. Clark. Oxidizing. 4d.
1215. E. H. Prentice. Phosphatic manures. 4d.
1229. J. Olroyd and others. Mixing dye liquors, &c. 4d.
1233. T. F. Henley. Preserving alimentary substances. 4d.
1299. W. H. Balmain. Manufacture of soda, &c. 4d.
2237. J. T. Daun. Manufacture of pearl hardening, white of baryta, and precipitate sulphate of lime, &c. 4d.

## INFRINGEMENTS OF THE MEDICAL ACT.

MR. THOMAS ANDREWS, a chemist and druggist of Shrewsbury, has lately had to defend himself in court for using the title of Doctor, which degree it seems emanated from a Philadelphia University. The complainants in the case were the Shropshire Branch of the British Medical Association. A fine of £20 was inflicted, and notice of appeal tendered.

A similar case was heard a few weeks previously by the Leicester magistrates, who decided in favour of the holder of the Philadelphia degree. In this case also notice of appeal was given.

Mr. John A. Forbes, chemist, Aberdeen, recently undertook quite a crusade against several of the black sheep of the medical profession established in that city. John H. Boyd was charged before Sheriff Thomson with having falsely and wilfully pretended to be a Doctor of Medicine. He had advertised himself as such in a local paper, and his name appeared in the "Aberdeen Directory" as John H. Boyd, M.D. He was fined £10, and two guineas expenses. Before a more merciful sheriff Frederick Adair was tried. His address was the same as—and we therefore presume that he was a partner with—the last-named defendant. In this case, too, the complaint was founded on an advertisement. Sheriff Smith decided that as it had not been proved that the advertisement was inserted by the authority of the respondent, he therefore found the charge not proven, and expenses were allowed to the respondent. Mr. J. A Forbes also prosecuted John Chadwick, 21, Lodge Walk, for. the unauthorized use of the title M.B. The defence was that the letters M.B. and L.V.M. meant medical botanist and licensed vendor of medicine. The Sheriff considered that if a man called himself M.B. he must certainly be understood to hold himself out to the world as possessing the degree of Bachelor of Medicine, and therefore likely to deceive the public as to his professional abilities. The respondent was fined £10, with £3 3s. expenses.

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## THE MONTH

### OBITUARY.

WE much regret to record the death of Mr. Joseph Watts jun., of Attercliffe, Sheffield. He was well-known to one class of our readers, as one of the most persevering and intelligent competitors in our "Corner for Students," in which he several times succeeded in placing himself at the top of the list. In the preliminary and minor examinations of the Pharmaceutical Society he took high rank, and was undoubtedly one of the most promising of our younger pharmacists. Those who knew him intimately speak most highly of his character, which, a correspondent says, "never lost the guileless consciousness and pure feeling of childhood." He died at the age of twenty-one.

We notice the death of Mr. G. F. Batchelour, aged 79. He was residing at West Dulwich for some time previous to his death, but had been for fifty-four years a chemist and druggist at Newington Butts.

On the 3rd instant, at the age of 57, died Mr. Edward Herring, the youngest son of the late Mr. Thomas Herring, founder of the well-known firm in Aldersgate-street. Mr. Edward Herring was himself a partner in that firm at one time, but withdrew some years ago, and followed other pursuits.

A "shark" calling himself by the curious name of "Captain Dumplin" commanding the *Peter Stewart*, lying in St. Katherine's Dock, has been "trying it on" down East. He claimed the personal friendship of Mr. Clark, chemist, of Commercial-road, and on this strong recommendation, obtained a "handsome rig out" besides board and lodging in that salubrious neighbourhood: lived in clover, had toast, eggs, and tea for breakfast, besides port wine and stout *ad libitum*, got a trifling advance of 3s. 6d. and "borrowed" an umbrella; unfortunately he carried his little joke too far, for having lived some weeks on the fat of the land, he thought he required a little air and exercise; accordingly he went out for an airing, but never returned; inquiries being made of his friend Mr. Clark, that gentleman and his apprentice both repudiated the honour of "the Captain's" acquaintance. The police discovered that he had been "boarding" at twenty different places, and that his real name is John Harrington. He was brought up at the Thames Police-court recently, and remanded.

The alarming increase of small-pox mortality during the past year is shown by a comparison of the weekly returns with those of 1870. In the seventeen principal cities and towns of England 1259 deaths occurred in the latter year from this pestilential scourge, whilst in 1871 the deaths over the same area were 13,174 The fact is sufficiently suggestive without comment, and ought to give a stimulus to the sanitary precautions so recently discovered to be imperative.

We notice that at a meeting of a provincial Board of Guardians the worthy members were somewhat puzzled as to the acceptance of the tenders for drugs, the qualities of which, as may be imagined, puzzled them sorely. Eventually, however, wise men as they were, they resolved all doubts by accepting the lowest priced tender, thus debarring, they considered, the possibility of error.

The extensive deposits of guano in the Lobos Islands, have recently been the subject of examination by a scientific commission, appointed for the purpose by the Government of Peru. The result is reported to be most satisfactory, and the guano to be particularly rich in nitrogenous matter, yielding on analysis, over thirteen per cent. of ammonia.

A Queensland farmer has favoured a provincial with the discovery that salad oil is an antidote for strychnia. In support of this theory, successful experiments on dogs are cited, and the enthusiastic discoverer writes, "So confident am I of the cure by oil, that I think I am only doing my duty by letting it be known that a gill of salad oil poured down the throat, if not too late in the application, is enough for a dog, and ought to be tried on a man."

The Liverpool magistrates have determined to try a new plan with a view to the suppression of drunkenness. Besides being fined, the offenders will have their names and addresses publicly advertised. It is to be hoped that Policeman X in Liverpool is too well trained to mistake a worthy Alderman or Councillor, returning from a convivial feast, for any ordinary mortal. Such a mistake might be awkward.

POISONED BY ANTIMONY.—A sad case is reported to have occurred at Bilston, in Staffordshire, where three children are supposed to have been poisoned with antimony, which, it was suggested (but was not shown), was sold by a chemist in mistake for tartaric acid. The mother, Eliza Griffiths, was charged at the Wolverhampton Police-court, with causing their death by administering poison to them. Dr. Alfred Hill, of Birmingham, had analyzed the principal internal organs of the children, and found four distinct traces of antimony in the remains of each.—Mr. Spencer: Supposing a medical man had attended the children, would he have been able to have detected antimony from the symptoms of the children?—Witness: I should think not. There are many diseases which simulate those symptoms.—In reply to Mr. Barrow, witness said he had never known antimony to be sold by mistake by chemists.—Mr. Barrow read a passage from Taylor's "Medical Jurisprudence," to the effect that antimony had been occasionally sold by chemists in mistake for tartaric acid.—Witness repeated that he had never known or heard of antimony being sold by chemists by mistake for some other article.—Dr. Hill had not completed his analysis, and the prisoner was therefore remanded.

CHEMISTS AND THE PETROLEUM ACT.—Messrs. Thos. Gilman and Son, wholesale druggists, etc., Lichfield-road, Aston, were charged before the Aston magistrates with unlawfully selling a pint and a quarter of petroleum, the vessel containing it not having attached thereto a label with the words "highly inflammable;" the defendants were further charged with selling petroleum without having a licence. This was the first case of the kind which the local board had instituted. A sample of the oil sold by defendants had been proved by analysis to be very explosive—much below the standard of 100° Fah.

The representative of Messrs. Gilman, on their behalf, pleaded guilty. The magistrates, in deciding the matter, expressed their appreciation of the necessity of dealing severely with these cases in the interests of the public safety, and they felt it to be their duty to show their sense of the serious nature of the offence by inflicting a fine of £5 in respect to the case in which a label had not been provided, and of £20 for not procuring a licence.—At the Bristol Police-court recently, several tradesmen were charged by the inspector with selling petroleum without affixing a label, bearing the words "highly inflammable," as required by the Act. In one case the inspector said that the petroleum which was sold was unusually inflammable. The defendant stated it was his habit to affix labels, but in this instance the petroleum was sold by his daughter, and he could not say that she had not neglected to do so. With regard to the defendants in the other cases, they stated that they were provided with labels, and that if the offence had been committed it must have been by accident. They thought that the inspector's man ought to have drawn their attention to the circumstance at the time. The Bench imposed the lowest penalty and costs in each case.

Poisoned by Opium.—An inquest was held on January 2nd at Lockwood, near Huddersfield, on two children, Eliza and Mary Todd. They were twins, but the age is not named in the report which has reached us. On the previous Friday they were suffering from pains in the stomach, and on the Saturday, as they were no better, a neighbour said she would get something which would ease the children. About half-past three she brought a pill-box with something in it about the size of a bean, together with some aniseed. Hoyle told her that she was to put the two ingredients in a pint of water and simmer it down to a gill, but did not say how much of it must be given to the children. About four o'clock she gave one of the children nearly two teaspoonsful of the mixture, and then the same quantity to the other child. The medicine quieted the children, and when she looked at them again, about nine o'clock, both of them looked very queer. The one - Eliza—to whom the stuff was administered first, appeared to be dead, and the other seemed blue, and its little hands were drawn up. Witness ran to Elizabeth Hoyle's, and, addressing her father, said, "Oh, Bob, what have you done to kill my children?" He replied, "Oh, they will be all right in the morning. One of our Martha's slept twenty-four hours." He then told her that the stuff was, and some one else in the house said she ought only to have given them half a spoonful each. She then went for her husband, and when she got home again the child Eliza was dead. Mr. Goodall, surgeon, was sent for to see the other child on the Saturday night, but he did not attend till the Sunday at noon; the child kept groaning all night, and died on Monday morning. In reply to the jury the mother said there was no label on the box containing the opium.—The neighbour, Elizabeth Hoyle, said that her father brought from Huddersfield a pennyworth of aniseed and two pennyworth of opium. She took it to Mrs. Todd, and gave her directions to put the ingredients into a pint of water and a cupful of sugar, and let the lot simmer down to a gill. Mrs. Todd asked her what quantity her (Hoyle's) sister gave, and witness answered two teaspoonsful a day, and she then told Mrs. Todd to give her children half a teaspoonful each. Her sister's child was sixteen months old. The box containing the opium was wrapped in blue paper and sealed with red sealing wax; there was no printing or writing on either the box or blue paper. She did not know what opium was, nor that the stuff in the box was opium.—Robert Hoyle, the father of the last witness, said that he got the stuff according to the advice of his daughter Martha, and he obtained it from Mr. George Hall, druggist, Kirkgate, Huddersfield, on Saturday, about noon. One of the assistants served him with it, and put it in a pill-box, on which there was no writing or printing. He had gone for the same kind of stuff several times, and had never had a label on the box or paper. His daughter Martha had given her children opium ever since they were born, and it made them eat well. The young man who served him with the opium never asked him what he wanted it for. He always fetched the same quantity, and if Mr. Hall said he did not get it at his shop he should still adhere to his statement.—Mr. Hall, the druggist, said he had questioned all the young men in his shop, and they declared that no opium was sold at the shop on Saturday. He should say that the opium-box was not one supplied from his shop; he could not tell from its appearance whether it had had a label or not.—The Coroner said he thought there was no criminality on the part of any of the witnesses, but there had been gross ignorance and carelessness, and the opium had been administered undesignedly and inadvertently.—The jury returned the following verdict: "The two deceased children have died from the effects of an overdose of opium, inadvertently and carelessly administered by the mother of the deceased. The jurors are of opinion that great ignorance and carelessness were displayed in the use of such a dangerous drug, but that there is no criminality in the matter."

### TEST FOR ALCOHOL.

A new test for alcohol has just been published by M. Berthelot. The liquid suspected to contain alcohol is mixed with water, and a little chloride of benzoyl is dropped in, the whole being then mixed and gently warmed. When cold, a few drops of a solution of caustic potash are then added; if the liquid remains turbid, and an agreeable aromatic odour be evolved, alcohol is present; but if, on the contrary, the liquid becomes clear, or lose all odour, or merely give that of a benzoate, no alcohol is present. The action is as follows: — Benzoic ether, which possesses a fragrant odour, is formed by the action of the chloride of benzoyl upon the alcohol. This ether is but very slowly affected by caustic potash, whereas the excess of chloride of benzoyl used is at once decomposed by the caustic alkali into benzoate and chloride of potassium. The ether remains and can be identified, while the reagent employed in the first instance is removed completely. This test is exceedingly delicate.

## THE GAZETTE.

### PARTNERSHIPS DISSOLVED.

Bush, Edwin, and Joshua Parsons, Frome, Somersetshire, surgeons.

Day, John, and George Overend Drewry, Walsall, Staffordshire, surgeons

Figgins, Henry, and Henry Denne, Islington, Birmingham, surgeons.

Jackson, F. H. Ward, and H. Gardner, Liverpool, drug brokers.

Linnsey, Mark John, and Eustace James Lindsey, Ludgate-hill, surgical instrument makers.

Lock, Alfred George, and Anous William Hall, Redbridge, Southampton, chemical manufacturers.

Mansergh, James Knott, and Thomas Mansergh, Wheatbill-street, Broughton-road, Salford, Lancashire, manufacturing chemists.

Messea, Josiah, Frederic Messer, Samuel Lloyd Stacey, and George Henry Wright, Poultry, City, chemists; so far as regards George Henry Wright.

Molineaux, James, and William Birtwhistle, Hessle, Yorkshire, surgeons.

Robarts, Henry Pratt, and William Gill, late of Woburn-place, Russell-square, general medical and surgical practitioners.

Sissons, William Harling, and Frederick Philpot, Barton-on-Humber, Lincolnshire, surgeons.

Weiss, Frederick Foveaux, Alfred Markes, Henry Joseph Francis Hubert Foveaux, Strand, surgical instrument makers.

Welch, Edward, and Elizabeth Marston Davis, Western-road, Wood-green, manufacturers of aniline colours.

### DECLARATIONS OF DIVIDENDS.

Campion, Richard, and Edmund Henry Jones, Wolverhampton, chemists, third div. 13-62d, any Thursday, at Mr. Kinnear's, Waterloo Rooms, Birmingham.

Corben, Henry William, late of Wincanton, Somersetshire, druggist, second div. of 8½d.

Fawthrop, Joah, Pellon-lane, Halifax, wholesale druggist, first div. of 5s. any day, at Mr. Crouhelm's, Horton-street, Halifax.

Haden, Edward Cresswell, Sedgley, Staffordshire, surgeon, first div. of 5s. any Thursday, at Mr. Kinnear's, Waterloo Rooms, Birmingham.

May, George Thomas, Well-street, Tunstall, Staffordshire, surgeon, first div. of 4s. 5d. any day, at Mr. Kinnear's, Waterloo Rooms, Birmingham.

Mudd, Frederick Charles, Uokfield, Sussex, surgeon, first and final div of 5s. 6d. any day, at Mr. Hillman's, Lewes.

### BANKRUPTS.

There are no chemists and druggists, surgeons, or others included in our scope in the *Gazette* this month.

# Varia.

FEMALE MEDICAL STUDENTS.—The University Court of Edinburgh has considered the proposals in reference to the Medical Education of Women, which have been brought before it by Miss Jex Blake and Miss Louisa Stevenson. The Court rejected the proposals on the ground that two of them involved action beyond the authority of the Court, and that the third involved the question of graduation, which the Court did not feel competent to decide. The resolution of the Court continues, "Though the Court are unable to comply with any of the specific requests referred to, they are at the same time desirous to remove, so far as possible, any present obstacle in the way of a complete medical education being given to women, provided always that medical instruction to women be imparted to strictly separate classes. The Court are of opinion that the question under reference has been complicated by the introduction of the subject of graduation, which is not essential to the completion of a medical or other education. The University of London, which has a special charter for the examination of women, does not confer degrees upon women, but only grants them 'certificates of proficiency.' If the applicants in the present case would be content to seek the examination of women by the University for certificates of proficiency in medicine instead of for University degrees, the Court believe that arrangements for accomplishing this object would fall within the scope of the powers given to them by Section 12 of the Universities (Scotland) Act. The Court would be willing to consider any arrangement which might be submitted to them."

NEW MORDANT APPLICABLE TO ANILINE COLOURS.—For this purpose the oxide of zinc may be used, in accordance with a patent taken out in France, by MM. Biot and Thisau, and may be used for mordanting aniline blue upon cotton, or the iodine green upon wool. The mordanting is effected by simply immersing the goods for some hours in a bath of cold water, in which chloride or acetate of zinc has been dissolved until the solution shows 2° B.; for the wool the mordanting bath should be at a boiling heat, and the goods should also be placed in a warm bath of tannin 50° C. for half an hour. In dyeing, a hot solution of the colour must be used, to which should be added, in the case of the cotton, some chloride of zinc, and, in the case of the wool, a certain amount of tannin solution.

ADULTERATION OF CUDBEAR.—During the last five years cudbear has been largely adulterated with a bye-product of magenta. We are informed that not less than 33 per cent. of this bye-product is sometimes added; yet it appears that the quality of the cudbear does not suffer very much by this adulteration, as the magenta refuse possesses to a great extent the properties peculiar to cudbear. The bye-product, if dissolved in spirits of salts and boiling water, produces a bright claret colour. We would, however, advise our friends to buy cudbear which is guaranteed to be free from all adulteration; but if, however, they wish to possess themselves of this mixture, it can be purchased from any aniline colour manufacturers at a trifling cost—we believe less than twenty shillings per cwt.

An evening contemporary in a recent article warmly sup porting the extended use of Australian meats, and suggesting the importation of recently killed carcases from Halifax, says: "Surely this proposed means of procuring good meat on reasonable terms for the public should at least get a trial. It requires but small capital, is attended with little risk, and, if successful, would prove most remunerative to the *undertakers.*"

NICE CHRISTMAS HAMPER.

Bottle of black draught.
Bottle of cough mixture.
Bottle of embrocation (for chilblains).
Box of lip salve.
Pot of cold cream.
Packet of lozenges.
Respirator.—*Punch's Almanac.*

A Michigan doctor, who was arrested because his patient died, has been acquitted on the ground that he did the best he could, giving all the medicines he knew the names of.

A waggish journalist, who is often merry over his personal plainness, tells this story of himself:—"I went to a chemist the other day for a dose of morphine for a sick friend; the assistant objected to give it me without a prescription, evidently fearing that I intended suicide. 'Pshaw' said I, 'do I look like a man who would kill himself?' Gazing steadily at me a moment, he replied, 'I don't know, it seems to me if I looked like you, I should be greatly tempted to kill myself.'"

# TRADE REPORT.

IN a commercial sense, 1871 has been a year of unprecedented prosperity. Every available index registers a high mark. Never before have the transactions of British trade been represented by aggregates so enormous. 1870 was the first that had come up to the figures of 1865; but 1871 has shot far ahead. Our exports up to the end of November were worth twenty millions more than those for the corresponding eleven months of 1870. Our imports have even been more signal in their advance, the increase counting for no less than thirty-seven millions. The revenue exceeds that of the corresponding three quarters of 1870 by two millions and a quarter. Money has been cheap all the year round; in the end of September the rate of discount was sharply raised from 3 to 5 per cent. consequent on the state of the Bank of England accounts, and the apprehension of a drain to meet French payments, but it receded to its old level. The rise caused a species of modified semi-panic in the Stock Exchanges, but the ebullition was slight and short-lived. All kinds of legitimate joint stock enterprise are thriving; as an instance it may be noted that the eighteen leading railway companies will probably divide a million more among their shareholders than they were able to do during 1870. One flourishing branch of industry was for three or four months seriously affected by a "strike," which ultimately proved successful. In consequence of the success of a similar movement at Sunderland, the working engineers of Newcastle demanded the reduction of the ordinary day's labour to nine hours; and their employers, after importing many foreign workmen to take the place of the seceders, were finally compelled to yield. Their example was followed, either voluntarily or under pressure, by many great employers in other parts of the kingdom; and the state of trade enables the workmen to retain, nevertheless, the previous rate of wages. Even pauperism can be well reported on; though it has not diminished, it has failed to keep even pace as it usually does with the growth of wealth and the progress of society.

The individual trade we represent has largely participated in the general prosperity. Foreign requirements have greatly increased, and the unostentatious-looking mart where the great "staples" are brought to the hammer, has been the scene of incessant activity and prodigious business.

To give a summary of the infinite and varied monetary values attained by different articles during the year would absorb more space than could be conveniently spared; at the same time, the very marked alteration in some commodities renders a com[illegible]ison of their past and present prices imperative, and this [illegible] be found in another place. Close attention to the market movements during the past twelve months has enabled us to present to our readers each month a faithful report of all important changes, and it is hoped that our prescience in foretelling many results may oftimes have stood them in good stead.

In consequence of the intervention of "the merry season," the fortnightly drug sales, which in due course should have taken place on the 21st of last month, were postponed till the 11th inst., and such large parcels were then down for disposal as to necessitate a two days' sale.

The usual fortnightly sales of Cochineal were held on the 3rd inst., and an active competition prevailed. Ordinary Teneriffe Silver sold at 2d. above the previous auctions, better kinds being 1d. to 2d. higher. Black sold at an advance of fully 2d. per lb. The scanty supplies of Honduras and Mexican also sold at about 2d. advance. Since the auctions a sustained demand has further pushed up prices 1d. per lb. A progressive increase of trade in Cochineal may be noted during the last few years, and more particularly in 1871, when the deliveries amounted to 32,145 bags, the largest yet known, and 4,500 bags in excess of the previous year.

Camphor has been the medium of much speculative demand, and is appreciably dearer. Sales of China were effected on the 5th to the extent of 450 cases—200 cases on the spot at 82s. 6d., and 250 afloat at 85s.

Galls are worth more money, and China have been taken at auction as high as 62s.

Cantharides maintain previous high quotations, and, with reduced stocks and no expectation of good supplies forward, it seems safe to predict that no easier terms are likely to occur just yet. Cardamoms are procurable at somewhat lower rates, which is to be attributed to fair arrivals last month; it is not likely that prices will continue to descend, however. In essential oils, we note the high price of Cassia is sustained, and that Aniseed remains firm, though quiet, at previous quotations. On reference to current rates this time last year, it will be found that the latter oil is enhanced in value about 4s. per lb. In consequence of the very high price asked for Lemons, Terebinthinate, or "doctored" varieties, are being put forward to meet a demand which it is to be regretted should exist.

There is still an augmented demand for Guinea Grains, in which the Continent participates, and rates keep at a high figure. At last sales Cinchona Barks induced active competition, and were taken at full prices.

Cundurango again cropped up at the sales, and the old farce of buying in at 5s per lb. was re-enacted. This mushroom candidate for a place in the Pharmacopœia seems to die hard. Its curative properties have been most conclusively settled; they are simply *nil*, and we can only account for the trash being offered and bought in at such an absurd price by assuming that credulous holders are unwilling to abandon the idea that "Cundurango" will yet prove a brilliant success.

Cinnamon continues to meet a fair demand, and prices remain high. It must be noted that supplies show a falling off compared with the two previous years; the exports from Ceylon for the season ending 30th September being 1,141,862 lbs., against 1,397,460 lbs. in 1870. Spurious varieties have been generally neglected, and the high prices attained by the best sorts seem to have diverted attention to medium and common kinds, which show an improvement of about 6d. per lb., whilst the better qualities are barely 4d. higher.

Cape Aloes are in good request at higher prices. Of 53 cases offered on Thursday last, 21 sold at 41s. to 46s. 6d., for rather coarse and drossy to good hard bright, and 30s. for ordinary. Ipecacuanha and Jalap are both procurable at lower figures, and good supplies of Aniseeds are now on he market, prices ruling much easier.

Spices have not fluctuated much since we last reported. Black Pepper is lower, however, in consequence of very heavy arrivals; 400 bags, landing as we write, have been sold at 5⅜d. per lb. It is interesting to note the increased transactions in this important spice during the past year. Imports show an increase of 400 tons, notwithstanding which the Continental demand has been so far in excess of former years as to keep he stock well down. Prices were necessarily influenced by he strong demand, and at the close an advance of 1½d. per lb. was established on 1870 quotations. The remunerative prices obtainable for Black seems to have curtailed somewhat the production of White Pepper, which met an active demand throughout the year, closing at an advance of 6d. per lb. Imports of Cloves have not equalled the high figures of 1869, but are nevertheless twice the amount of last year, being 8,500 packages.

Chemicals.—The flourishing condition of this branch throughout the year has been altogether without precedent. Among the causes which have contributed to this satisfactory result must be enumerated the disastrous war which diverted orders from the belligerent countries to our own land. The exports in the corresponding eleven months of 1870 amounted to £2,449,970; in 1871, to £3,021,894, showing an increase of £571,924. In the eleven months of 1871 the exports of Alkali were 190,000 tons, value £1,588,376, as against 175,847 tons, value £1,356,729, in the corresponding period of 1870. Soda Ash and Bicarbonate, Bleaching Powder, Caustic Soda, and Soda Crystals have consistently advanced throughout the twelve months. Soda Ash in January quoted 1⅞d. to 2d. landed, is now quoted 2½d.; Bicarb. Soda in January quoted 10s. 6d. to 10s. 9d. landed, is now quoted 14s.; Bleaching Powder in January quoted 10s. 6d. landed, is now quoted 13s. 6d.; Caustic Soda (white 60 to 62 per cent.) in January quoted 14s. 3d. to 14s. 6d. landed, is now quoted 17s.; Soda Crystals in January quoted £4 7s. 6d. landed, is now quoted £5 12s. 6d. with occasional slight reactions, but a gradual rise of about 25 per cent. on the whole.

Potash preparations have undergone important changes. Sulphate of Ammonia was in great demand; much of this demand was from the Continent, for use in the beet-root cultivation, which is considerably increasing. The price of the chemical was enhanced in consequence. During the last month less business has been done in the Sulphate, but only because plentiful supplies were not available. Refined Borax continues firm at 100s.; Sulphate of Copper is slightly higher, and the further rise in the metal will doubtless affect future quotations. Two cases of Iodide of Potassium were put up at auction on the 11th, and were bought in at 35s. We have reason to believe that a well-known firm put the article forward merely to feel the pulse of the market. Quinine maintains very firm prices, and in the face of a strong demand, no immediate abatement must be looked for.

Mercurial preparations are without change, although the metal is quoted 10s. per bottle higher. We note that in these the exports of the past year have been larger than the imports.

Oils.—No changes of much moment to report. Now Olive is coming on the market, and, in consequence of the anticipated small supply, will probably rise to a high figure. Palm is slightly stiffer, and Cocoa-nut easier. Turpentine—The market for spirits was steady, at 49s. 6d., up to the 29th December, when a report that a vessel was destroyed, with 2000 barrels on board, caused an active demand at advancing prices. Sales of French were made at 50s. and 50s. 6d., and American went off at similar prices. The worth of the latter has steadily advanced, and is now 54s. 6d. Petroleum has improved to a slight extent since our last report.

# Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mincing-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

## CHEMICALS.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | s. | d. | | s. | d. | s. | d. | | s. | d. |
| ACIDS— | | | | | | | | | | |
| Acetic ..........per lb. | 0 | 4 | to | 0 | 0 | 0 | 4 | to | 0 | 0 |
| Citric ..........per lb. | 2 | 10 | .. | 2 | 10½ | 2 | 4½ | .. | 0 | 0 |
| Hydrochlor. ....per cwt | 4 | 0 | .. | 7 | 0 | 4 | 0 | .. | 7 | 0 |
| Nitric ..........per lb. | 0 | 5 | .. | 0 | 5½ | 0 | 5 | .. | 0 | 5½ |
| Oxalic .......... ,, | 1 | 1½ | .. | 1 | 2 | 0 | 8 | .. | 0 | 0 |
| Sulphuric ...... ,, | 0 | 0¾ | .. | 0 | 1 | 0 | 0¾ | .. | 0 | 1 |
| Tartaric crystal .. ,, | 1 | 6¾ | .. | 1 | 7 | 1 | 2¾ | .. | 1 | 3 |
| powdered ,, | 1 | 7 | .. | 0 | 0 | 1 | 3 | .. | 1 | 3¼ |
| Antimony ore......per ton | 240 | 0 | .. | 0 | 0 | 260 | 0 | .. | 300 | 0 |
| crude ..per cwt | 34 | 0 | .. | 36 | 0 | 38 | 0 | .. | 0 | 0 |
| regulus.. ,, | 48 | 0 | .. | 49 | 0 | 62 | 0 | .. | 63 | 0 |
| star .... ,, | 50 | 0 | .. | 51 | 0 | 55 | 0 | .. | 0 | 0 |
| Arsenic, lump...... ,, | 15 | 6 | .. | 16 | 0 | 15 | 6 | .. | 16 | 0 |
| powder.... ,, | 6 | 9 | .. | 7 | 3 | 7 | 0 | .. | 7 | 6 |
| Brimstone, rough ..per ton | 140 | 0 | .. | 150 | 0 | 160 | 0 | .. | 0 | 0 |
| roll ....per cwt | 10 | 0 | .. | 10 | 6 | 11 | 0 | .. | 0 | 0 |
| flour.... ,, | 12 | 0 | .. | 13 | 0 | 12 | 0 | .. | 13 | 0 |
| Iodine, dry ........per oz. | 2 | 3 | .. | 0 | 0 | 0 | 10½ | .. | 0 | 10¾ |
| Ivory Black, dry..per cwt. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Magnesia, calcined..per lb. | 1 | 1 | .. | 0 | 0 | 1 | 2 | .. | 0 | 0 |
| Mercury...... .. per bottle | 210 | 0 | .. | 220 | 0 | 240 | 0 | .. | 0 | 0 |
| Minium, red ......per cwt. | 21 | 3 | .. | 21 | 6 | 21 | 0 | .. | 0 | 0 |
| orange .... ,, | 31 | 6 | .. | 32 | 0 | 31 | 6 | .. | 0 | 0 |
| Precipitate, red ....per lb. | 3 | 4 | .. | 0 | 0 | 3 | 10 | .. | 0 | 0 |
| white .. ,, | 3 | 3 | .. | 0 | 0 | 3 | 9 | .. | 0 | 0 |
| Prussian Blue ...... ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| SALTS— | | | | | | | | | | |
| Alum ............per ton | 160 | 0 | .. | 165 | 0 | 140 | 0 | .. | 150 | 0 |
| powder .... ,, | 165 | 0 | .. | 170 | 0 | 160 | 0 | .. | 165 | 0 |
| Ammonia: | | | | | | | | | | |
| Carbonate ......per lb. | 0 | 7 | .. | 0 | 7¼ | 0 | 5¾ | .. | 0 | 6 |
| Hydrochlorate, crude, white........ per ton | 560 | 0 | .. | 600 | 0 | 520 | 0 | .. | 560 | 0 |
| British (*see* Sal Ammoniac) | | | | | | | | | | |
| Sulphate ......per ton | 460 | 0 | .. | 470 | 0 | 325 | 0 | .. | 330 | 0 |
| Argol, Cape ......per cwt | 65 | 0 | .. | 93 | 0 | 57 | 6 | .. | 70 | 0 |
| France .... ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Oporto, red ,, | 22 | 0 | .. | 24 | 0 | 22 | 0 | .. | 24 | 0 |
| Sicily . .. ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Naples, white ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Florence, white | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| ,, red ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Ashes (*see* Potash and Soda) | | | | | | | | | | |
| Bleaching powd..per cwt. | 13 | 6 | .. | 0 | 0 | 10 | 0 | .. | 9 | 6 |
| Borax, crude .... ,, | 60 | 0 | .. | 80 | 0 | 42 | 6 | .. | 60 | 0 |
| (Tincal) .. ,, | 47 | 0 | .. | 65 | 0 | 45 | 0 | .. | 60 | 0 |
| British refnd. ,, | 100 | 0 | .. | 0 | 0 | 68 | 0 | .. | 70 | 0 |
| Calomel ..........per lb. | 3 | 2 | .. | 0 | 0 | 3 | 8 | .. | 0 | 0 |
| Copper: | | | | | | | | | | |
| Sulphate ......per cwt. | 28 | 0 | .. | 32 | 0 | 23 | 0 | .. | 25 | 0 |
| Copperas, green ..per ton | 62 | 6 | .. | 65 | 0 | 50 | 0 | .. | 60 | 0 |
| Corrosive Sublimate..p.lb. | 2 | 7 | .. | 0 | 0 | 2 | 11 | .. | 0 | 0 |
| Cr. Tartar, French, p. cwt. | 100 | 0 | .. | 0 | 0 | 88 | 0 | .. | 90 | 0 |
| Venetian grey ,, | 100 | 0 | .. | 0 | 0 | 90 | 0 | .. | 96 | 0 |
| brown ,, | 90 | 0 | .. | 95 | 0 | 0 | 0 | .. | 0 | 0 |
| Epsom Salts ....per cwt. | 6 | 0 | .. | 7 | 0 | 6 | 0 | .. | 7 | 0 |
| Glauber Salts .... ,, | 4 | 6 | .. | 6 | 0 | 4 | 6 | .. | 6 | 0 |
| Lime: | | | | | | | | | | |
| Acetate, white, per cwt. | 12 | 6 | .. | 23 | 0 | 12 | 6 | .. | 23 | 0 |
| Magnesia: Carbonate ,, | 42 | 6 | .. | 0 | 0 | 42 | 6 | .. | 0 | 0 |
| Potash: | | | | | | | | | | |
| Bichromate ....per lb. | 0 | 10 | .. | 0 | 0 | 0 | 5 | .. | 0 | 5¼ |
| Carbonate: | | | | | | | | | | |
| Potashes, Canada, 1st sort ......per cwt. | 45 | 6 | .. | 46 | 0 | 30 | 0 | .. | 33 | 6 |
| Pearlashes, Canada, 1st sort ......per cwt. | 49 | 0 | .. | 49 | 6 | 38 | 0 | .. | 42 | 0 |
| Chlorate ........per lb. | 1 | 0 | .. | 0 | 0 | 0 | 10½ | .. | 0 | 10¾ |
| Prussiate ...... per lb. | 1 | 9½ | .. | 0 | 0 | 1 | 0 | .. | 0 | 0 |
| red .... ,, | 3 | 0 | .. | 3 | 2 | 1 | 9½ | .. | 1 | 10 |
| Tartrate (*see* Argol and Cream of Tartar) | | | | | | | | | | |
| Potassium: | | | | | | | | | | |
| Chloride ......per cwt. | 11 | 0 | .. | 0 | 0 | 10 | 6 | .. | 13 | 0 |
| Iodide.......... per lb. | 32 | 0 | .. | 0 | 0 | 12 | 6 | .. | 13 | 0 |
| Quinine: | | | | | | | | | | |
| Sulphate, British, in bottles ...... per oz. | 7 | 9 | .. | 0 | 0 | 7 | 0 | .. | 7 | 3 |
| Sulphate, French ,, | 7 | 8 | .. | 0 | 0 | 7 | 9 | .. | 0 | 0 |
| Sal Acetos ........per lb. | 1 | 4 | .. | 0 | 0 | 0 | 10 | .. | 0 | 0 |
| Sal Ammoniac, Brit. cwt. | 45 | 0 | .. | 46 | 0 | 41 | 0 | .. | 42 | 6 |
| Saltpetre: | | | | | | | | | | |
| Bengal, 6 per cent or under ......per cwt. | 28 | 9 | .. | 29 | 6 | 30 | 6 | .. | 31 | 0 |
| Bengal, over per cent. per cwt. | 27 | 0 | .. | 28 | 0 | 29 | 0 | .. | 29 | 6 |
| Madras........ ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Bomb & Kurrachee p.ct. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| European...... ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| British, refined ,, | 34 | 0 | .. | 35 | 0 | 32 | 0 | .. | 33 | 0 |
| Soda: Bicarbonate, p.cwt. | 13 | 6 | .. | 14 | 0 | 10 | 6 | .. | 0 | 0 |
| Carbonate: | | | | | | | | | | |
| Soda Ash.... perdeg. | 0 | 2½ | .. | 0 | 2¾ | 0 | 1¾ | .. | 0 | 2 |
| Soda Crystals per ton | 112 | 6 | .. | 0 | 0 | 75 | 0 | .. | 77 | 6 |
| Hyposulphite..per cwt. | 14 | 0 | .. | 16 | 0 | 18 | 0 | .. | 0 | 0 |
| Soda: | | | | | | | | | | |
| Nitrate ........per cwt. | 16 | 9 | to | 17 | 0 | 16 | 0 | to | 10 | 6 |
| Sugar of Lead, White, cwt. | 40 | 0 | .. | 0 | 0 | 39 | 0 | .. | 40 | 0 |
| Brown .......... ,, | 2 | 0 | .. | 0 | 0 | 26 | 0 | .. | 28 | 0 |
| Sulphur (*see* Brimstone | | | | | | | | | | |
| Verdigris ........ per lb. | 1 | 0 | .. | 1 | 2 | 1 | 0 | .. | 1 | 2 |
| Vermilion, English..per lb. | 3 | 2 | .. | 3 | 4 | 4 | 2 | .. | 4 | 4 |
| China.... ,, | 3 | 0 | .. | 0 | 0 | 3 | 0 | .. | 0 | 0 |

## DRUGS.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | s. | d. | | s. | d. | s. | d. | | s. | d. |
| Aloes, Hepatic....per cwt. | 70 | 0 | .. | 220 | 0 | 70 | 0 | .. | 210 | 0 |
| Socotrine .. ,, | 120 | 0 | .. | 280 | 0 | 120 | 0 | .. | 315 | 0 |
| Cape, good.. ,, | 29 | 0 | .. | 36 | 0 | 24 | 0 | .. | 27 | 0 |
| Inferior ,, | 22 | 0 | .. | 28 | 0 | 17 | 0 | .. | 23 | 0 |
| Barbadoes ,, | 70 | 0 | .. | 210 | 0 | 70 | 0 | .. | 200 | 0 |
| Ambergris, grey........ oz. | 20 | 0 | .. | 29 | 0 | 25 | 0 | .. | 28 | 0 |
| BALSAM — | | | | | | | | | | |
| Canada .......... per lb. | 1 | 6 | .. | 0 | 0 | 0 | 11 | .. | 1 | 0 |
| Capivi ............ ,, | 1 | 10½ | .. | 1 | 11½ | 1 | 7 | .. | 0 | 0 |
| Peru ............ ,, | 9 | 0 | .. | 9 | 3 | 9 | 2 | .. | 0 | 0 |
| Tolu .............. ,, | 2 | 2 | .. | 2 | 3 | 2 | 3 | .. | 0 | 0 |
| BARKS— | | | | | | | | | | |
| Canella alba ....per cwt. | 15 | 0 | .. | 25 | 0 | 12 | 6 | .. | 30 | 0 |
| Cascarilla.. ..... ,, | 20 | 0 | .. | 37 | 0 | 18 | 0 | .. | 32 | 0 |
| Peru, crown & grey per lb. | 1 | 6 | .. | 3 | 2 | 0 | 10 | .. | 2 | 4 |
| Calisaya, flat ,, | 3 | 2 | .. | 3 | 4 | 3 | 0 | .. | 3 | 4 |
| quill ,, | 3 | 2 | .. | 3 | 4 | 3 | 0 | .. | 3 | 3 |
| Carthagena ,, | 0 | 10 | .. | 1 | 8 | 0 | 10 | .. | 1 | 6 |
| Pitayo .... ,, | 0 | 10 | .. | 1 | 6 | 0 | 10 | .. | 1 | 7 |
| Red ........ ,, | 1 | 10 | .. | 6 | 6 | 1 | 6 | .. | 5 | 6 |
| Bucho Leaves ...... ,, | 0 | 4 | .. | 1 | 0 | 0 | 4½ | .. | 0 | 8 |
| Camphor, China.. per cwt. | 82 | 0 | .. | 0 | 0 | 70 | 0 | .. | 0 | 0 |
| Japan ,, | 0 | 0 | .. | 0 | 0 | 70 | 0 | .. | 76 | 0 |
| Refin Eng. per lb. | 1 | 3½ | .. | 1 | 4 | 1 | 2 | .. | 1 | 2½ |
| Cantharides ...... ,, | 8 | 0 | .. | 0 | 0 | 5 | 0 | .. | 0 | 0 |
| Chamomile Flowers p. cwt | 45 | 0 | .. | 70 | 0 | 40 | 0 | .. | 65 | 0 |
| Castoreum ........ per lb. | 3 | 0 | .. | 30 | 0 | 3 | 0 | .. | 30 | 0 |
| Dragon's Blood, lp. p. cwt. | 110 | 0 | .. | 210 | 0 | 90 | 0 | .. | 200 | 0 |
| FRUITS AND SEEDS (*see also* Seeds *and* Spices) | | | | | | | | | | |
| Anise, China Star pr cwt. | 135 | 0 | .. | 140 | 0 | 110 | 0 | .. | 115 | 0 |
| German, &c. ,, | 65 | 0 | .. | 70 | 0 | 30 | 0 | .. | 36 | 0 |
| Beans, Tonquin .. per lb. | 0 | 9 | .. | 1 | 6 | 0 | 9 | .. | 1 | 4 |
| Cardamoms, Malabar good ,, | 8 | 0 | .. | 8 | 9 | 10 | 0 | .. | 14 | 0 |
| inferior ,, | 7 | 0 | .. | 7 | 9 | 0 | 0 | .. | 0 | 0 |
| Madras ,, | 3 | 6 | .. | 8 | 0 | 5 | 6 | .. | 10 | 0 |
| Ceylon ,, | 3 | 0 | .. | 3 | 2 | 2 | 9 | .. | 3 | 0 |
| Cassia Fistula.. per cwt. | 12 | 0 | .. | 30 | 0 | 12 | 0 | .. | 30 | 0 |
| Castor Seeds .. ,, | 10 | 0 | .. | 12 | 0 | 10 | 0 | .. | 12 | 0 |
| Cocculus Indicus ,, | 20 | 0 | .. | 22 | 0 | 13 | 0 | .. | 13 | 6 |
| Colocynth, apple.. per lb. | 0 | 3 | .. | 0 | 0 | 0 | 4 | .. | 0 | 6 |
| Croton Seeds .. per cwt. | 70 | 0 | .. | 75 | 0 | 99 | 0 | .. | 105 | 0 |
| Cubebs ........ ,, | 25 | 0 | .. | 27 | 6 | 22 | 6 | .. | 25 | 6 |
| Cummin........ ,, | 55 | 0 | .. | 61 | 0 | 100 | 0 | .. | 120 | 0 |
| Dividivi ........ ,, | 12 | 0 | .. | 15 | 0 | 12 | 0 | .. | 13 | 0 |
| Fenugreek...... ,, | 11 | 0 | .. | 21 | 0 | 13 | 0 | .. | 15 | 0 |
| Guinea Grains .. ,, | 42 | 0 | .. | 0 | 0 | 23 | 0 | .. | 25 | 0 |
| Juniper Berries ,, | 15 | 0 | .. | 18 | 0 | 11 | 6 | .. | [illegible] | 0 |
| Myrobalans .... ,, | 12 | 0 | .. | 17 | 0 | 10 | 0 | .. | 15 | 6 |
| Nux Vomica.... ,, | 11 | 0 | .. | 13 | 6 | 9 | 6 | .. | 13 | 0 |
| Tamarinds, East India ,, | 2 | 0 | .. | 12 | 0 | 8 | 0 | .. | 12 | 0 |
| West India, new ,, | 12 | 0 | .. | 30 | 0 | 9 | 0 | .. | 15 | 0 |
| Vanilla, large .... per lb. | 40 | 0 | .. | 50 | 0 | 40 | 0 | .. | 50 | 0 |
| inferior ,, | 17 | 0 | .. | 37 | 0 | 27 | 0 | .. | 37 | 0 |
| Wormseed per cwt. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Ginger, Preserved, in bond (duty 1d. per lb.) per lb. | 0 | 6½ | .. | 0 | 11 | 0 | 6 | .. | 0 | 8 |
| Gums (*see separate list*) | | | | | | | | | | |
| Honey, Chili .... per cwt. | 50 | 0 | .. | 60 | 0 | 36 | 0 | .. | 46 | 0 |
| Cuba .... ,, | 35 | 0 | .. | 50 | 0 | 22 | 0 | .. | 36 | 0 |
| Jamaica.. ,, | 50 | 0 | .. | 66 | 0 | 31 | 0 | .. | 52 | 0 |
| Ipecacuanha .... per lb. | 5 | 0 | .. | 5 | 2 | 5 | 0 | .. | 5 | 7 |
| Isinglass, Brazil . ,, | 2 | 6 | .. | 4 | 4 | 3 | 0 | .. | 4 | 9 |
| Tongue sort ,, | 3 | 3 | .. | 5 | 1 | 4 | 0 | .. | 5 | 4 |
| East India ,, | 1 | 5 | .. | 3 | 10 | 1 | 8 | .. | 4 | 3 |
| West India ,, | 3 | 10 | .. | 4 | 1 | 4 | 2 | .. | 4 | 7 |
| Russ. long staple | 6 | 0 | .. | 9 | 6 | 5 | 6 | .. | 8 | 6 |
| ,, leaf ,, | 3 | 6 | .. | 6 | 6 | 3 | 0 | .. | 5 | 6 |
| ,, Simovia | 2 | 0 | .. | 3 | 6 | 1 | 6 | .. | 2 | 6 |
| Jalap, good ...... ,, | 1 | 6 | .. | 2 | 6 | 1 | 8 | .. | 3 | 0 |
| infer. & stems ,, | 0 | 0 | .. | 1 | 5 | 0 | 6 | .. | 1 | 6 |
| Lemon Juice ... per degree | 0 | 1 | .. | 0 | 1⅛ | 0 | 1 | .. | 0 | 1⅛ |
| Liquorice, Spanish per cwt. | 35 | 0 | .. | 37 | 0 | 0 | 0 | .. | 0 | 0 |
| Italian ,, | 40 | 0 | .. | 60 | 0 | 40 | 0 | .. | 60 | 0 |
| Manna, flaky .... per lb. | 3 | 3 | .. | 3 | 6 | 3 | 0 | .. | 4 | 0 |
| small...... ,, | 2 | 0 | .. | 0 | 0 | 2 | 0 | .. | 2 | 2 |
| Musk.............. per oz. | 17 | 0 | .. | 37 | 0 | 16 | 0 | .. | 33 | 0 |
| OILS (*see also separate List*) | | | | | | | | | | |
| Almond, expressed per lb. | 1 | 4 | .. | 0 | 0 | 1 | 1 | .. | 0 | 0 |
| Castor, 1st pale .... ,, | 0 | 5 | .. | 0 | 5¼ | 0 | 4¾ | .. | 0 | 5 |
| second .... ,, | 0 | 4½ | .. | 0 | 4 | 0 | 4¼ | .. | 0 | 4⅝ |
| infer. & dark ,, | 0 | 4¼ | .. | 0 | 4½ | 0 | 4 | .. | 0 | 4¼ |
| Bombay (in casks) | 0 | 4¼ | .. | 0 | 4½ | 0 | 4 | .. | 0 | 4¼ |
| Cod Liver ......per gall | 5 | 0 | .. | 6 | 0 | 5 | 0 | .. | 6 | 0 |
| Croton............per oz. | 0 | 3½ | .. | 0 | 4¼ | 0 | 3½ | .. | 0 | 4½ |
| Essential Oils: | | | | | | | | | | |
| Almond ........per lb | 42 | 0 | .. | 0 | 0 | 42 | 0 | .. | 0 | 0 |
| Anise-seed ...... per lb. | 12 | 0 | .. | 12 | 6 | 8 | 9 | .. | 0 | 0 |
| Bay ..........per cwt. | 65 | 0 | .. | 70 | 0 | 65 | 0 | .. | 70 | 0 |
| Bergamot ......per lb. | 8 | 9 | .. | 15 | 0 | 8 | 0 | .. | 15 | 0 |
| Cajeput, (in bond) per oz. | 0 | 1½ | .. | 0 | 3 | 0 | 2½ | .. | 0 | 3 |
| Caraway ........per lb. | 5 | 6 | .. | 6 | 3 | 5 | 6 | .. | 6 | 3 |
| Cassia .......... ,, | 5 | 9 | .. | 6 | 0 | 4 | 6 | .. | 0 | 0 |
| Cinnamon ......per oz. | 0 | 10 | .. | 3 | 0 | 1 | 0 | .. | 4 | 6 |
| Cinnamon-leaf.. ,, | 0 | 2 | .. | 0 | 4½ | 0 | 2 | .. | 0 | 6 |

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Essential Oils, *continued*:— | s. | d. | | s. | d. | s. | d. | | s. | d. |
| Citronelle ......per oz. | 0 | 1¾ | to | 0 | 1⅞ | 0 | 2 | to | 0 | 2⅛ |
| fine.... ,, | 0 | 0 | .. | 0 | 0 | 0 | 2¼ | .. | 0 | 0 |
| Clove............per lb. | 2 | 4 | .. | 0 | 0 | 2 | 5 | .. | 2 | 0 |
| Juniper ........ ,, | 1 | 9 | .. | 2 | 0 | 1 | 9 | .. | 2 | 0 |
| Lavender........ ,, | 3 | 0 | .. | 0 | 0 | 3 | 0 | .. | 4 | 3 |
| Lemon.......... , | 5 | 0 | .. | 15 | 0 | 5 | 0 | .. | 9 | 6 |
| Lemongrass ....per oz. | 0 | 2¾ | .. | 0 | 2⅞ | 0 | 2¾ | .. | 0 | 3 |
| Neroli .......... ,, | 0 | 5 | .. | 0 | 6 | 0 | 5 | .. | 0 | 6 |
| Nutmeg ........ ,, | 0 | 4½ | .. | 0 | 10½ | 0 | 4 | .. | 0 | 7¾ |
| Orange..........per lb. | 7 | 0 | .. | 8 | 0 | 5 | 0 | .. | 7 | 0 |
| Otto of Roses....per oz. | 12 | 0 | .. | 21 | 0 | 12 | 0 | .. | 20 | 0 |
| Patchouli ...... ,, | 4 | 0 | .. | 0 | 0 | 3 | 0 | .. | 0 | 0 |
| Peppermint: | | | | | | | | | | |
| American ....per lb. | 13 | 0 | .. | 14 | 6 | 15 | 6 | .. | 16 | 0 |
| English ...... ,, | 30 | 0 | .. | 33 | 0 | 33 | 0 | .. | 34 | 0 |
| Rosemary ...... ,, | 1 | 9 | .. | 2 | 0 | 1 | 9 | .. | 2 | 0 |
| Sassafras........ ,, | 3 | 0 | .. | 3 | 6 | 3 | 0 | .. | 0 | 0 |
| Spearmint ...... ,, | 4 | 0 | .. | 16 | 0 | 4 | 0 | .. | 16 | 0 |
| Thyme.......... ,, | 1 | 10 | .. | 2 | 0 | 1 | 10 | .. | 2 | 0 |
| Mace, expressed .. per oz. | 0 | 1½ | .. | 0 | 3 | 0 | 1½ | .. | 0 | 3 |
| Opium, Turkey ...... per lb. | 17 | 0 | .. | 19 | 0 | 27 | 0 | .. | 23 | 0 |
| inferior ...... ,, | 11 | 0 | .. | 10 | 0 | 15 | 0 | .. | 24 | 0 |
| Quassia (bitter wood) per ton | 80 | 0 | .. | 82 | 6 | 60 | 0 | .. | 70 | 0 |
| Rhubarb, China, good and fine ..............per lb. | 2 | 0 | .. | 6 | 0 | 2 | 6 | .. | 6 | 0 |
| Good, mid. to ord. ,, | 0 | 3½ | .. | 1 | 10 | 0 | 4 | .. | 2 | 3 |
| Dutch trimmed ,, | 0 | 0 | .. | 0 | 0 | 9 | 6 | .. | 10 | 0 |
| Russian ........ ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| ROOTS—Calumba..per cwt. | 25 | 0 | .. | 42 | 0 | 25 | 0 | .. | 40 | 0 |
| China .......... ,, | 24 | 0 | .. | 26 | 0 | 20 | 0 | .. | 25 | 0 |
| Galangal ........ ,, | 17 | 0 | .. | 18 | 0 | 15 | 0 | .. | 16 | 0 |
| Gentian ........ ,, | 24 | 0 | .. | 25 | 0 | 23 | 0 | .. | 24 | 0 |
| Hellebore ...... ,, | 30 | 0 | .. | 35 | 0 | 22 | 0 | .. | 30 | 0 |
| Orris............ ,, | 65 | 0 | .. | 75 | 0 | 56 | 0 | .. | 60 | 0 |
| Pellitory ........ ,, | 58 | [illegible] | .. | 60 | 0 | 58 | 0 | .. | 60 | 0 |
| Pink..............per lb. | 0 | 9 | .. | 1 | 3 | 0 | 7 | .. | 1 | 0 |
| Rhatany.......... ,, | 0 | 4 | .. | 0 | 11 | 0 | 8 | .. | 0 | 10 |
| Sencka............ ,, | 5 | 3 | .. | 5 | 6 | 4 | 0 | .. | 0 | 0 |
| Snake ............ ,, | 1 | 6 | .. | 1 | 7 | 1 | 0 | .. | 0 | 0 |
| Saffron, Spanish .. ,, | 35 | 0 | .. | 44 | 0 | 33 | 0 | .. | 40 | 0 |
| Salep ............per cwt. | 170 | 0 | .. | 200 | 0 | 110 | 0 | .. | 0 | 0 |
| Sarsaparilla, Lima per lb. | 0 | 8 | .. | 0 | 11 | 0 | 6 | .. | 0 | 7½ |
| Para.............. ,, | 1 | 0 | .. | 1 | 3 | 1 | 0 | .. | 1 | 3 |
| Honduras ........ ,, | 1 | 2 | .. | 1 | 6¾ | 1 | 1 | .. | 1 | 6½ |
| Jamaica .......... ,, | 1 | 7 | .. | 2 | 10 | 1 | 7 | .. | 3 | 2 |
| Sassafras ........per cwt. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Scammony, Virgin ..per lb. | 26 | 0 | .. | 32 | 0 | 25 | 0 | .. | 29 | 0 |
| second & ordinary ,, | 10 | 0 | .. | 25 | 0 | 10 | 0 | .. | 23 | 0 |
| Senna, Bombay .... ,, | 0 | 3 | .. | 0 | 5½ | 0 | 3½ | .. | 0 | 5½ |
| Tinnivelly ........ ,, | 0 | 3¼ | .. | 1 | 4 | 0 | 3½ | .. | 1 | 6 |
| Alexandria........ ,, | 0 | 3½ | .. | 1 | 7 | 0 | 4½ | .. | 1 | 7 |
| Spermaceti, refined.. ,, | 1 | 0 | .. | 1 | 7 | 1 | 6 | .. | 1 | 7 |
| American ........ ,, | 1 | 2 | .. | 1 | 3 | 1 | 4 | .. | 0 | 0 |
| Squill.............. ,, | 0 | 1¼ | .. | 0 | 1¾ | 0 | 1 | .. | 0 | 2 |

## GUMS.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ammoniaci drop ..per cwt. | 80 | 0 | .. | 150 | 0 | 80 | 0 | .. | 100 | 0 |
| lump .. ,, | 55 | 0 | .. | 75 | 0 | 45 | 0 | .. | 75 | 0 |
| Animi, fine washed ,, | 280 | 0 | .. | 335 | 0 | 280 | 0 | .. | 320 | 0 |
| bold scraped ,, | 210 | 0 | .. | 270 | 0 | 200 | 0 | .. | 200 | 0 |
| sorts ...... ,, | 140 | 0 | .. | 230 | 0 | 100 | 0 | .. | 200 | 0 |
| dark ...... ,, | 85 | 0 | .. | 130 | 0 | 75 | 0 | .. | 100 | 0 |
| Arabic, E. I., fine pale picked .. ,, | 70 | 0 | .. | 76 | 6 | 62 | 0 | .. | 70 | 0 |
| srts, gd. to fin ,, | 57 | 0 | . | 69 | 0 | 52 | 0 | .. | 60 | 0 |
| garblings.. ,, | 23 | 0 | .. | 42 | 0 | 25 | 0 | .. | 45 | 0 |
| Turkey, pick. gd to fin. ,, | 160 | 0 | .. | 200 | 0 | 160 | 0 | .. | 200 | 0 |
| second & inf. ,, | 85 | 0 | .. | 155 | 0 | 85 | 0 | .. | 155 | 0 |
| in sorts .. ,, | 65 | 0 | .. | 80 | 0 | 70 | 0 | .. | 90 | 0 |
| Gedda.... ,, | 38 | 0 | .. | 44 | 0 | 38 | 0 | .. | 44 | 0 |
| Barbary, white .. ,, | 0 | 0 | .. | 0 | 0 | 65 | 0 | .. | 70 | 0 |
| brown .. ,, | 47 | 0 | .. | 48 | 0 | 55 | 0 | .. | 57 | 6 |
| Australian ...... ,, | 25 | 0 | .. | 42 | 6 | 20 | 0 | .. | 42 | 0 |
| Assafœtida, com. to gd ,, | 30 | 0 | .. | 100 | 0 | 30 | 0 | .. | 90 | 0 |
| Benjamin, 1st qual. ,, | 180 | 0 | .. | 500 | 0 | 160 | 0 | .. | 400 | 0 |
| 2nd ,, ,, | 150 | 0 | .. | 210 | 0 | 140 | 0 | .. | 210 | 0 |
| 3rd ,, ,, | 50 | 0 | .. | 85 | 0 | 40 | 0 | .. | 85 | 0 |
| Copal, Angola red ,, | 130 | 0 | .. | 137 | 6 | 30 | 0 | .. | 100 | 0 |
| Benguela .. ,, | 100 | 0 | .. | 112 | 6 | 80 | 0 | .. | 90 | 0 |
| Sierra Leone..per lb. | 0 | 3½ | .. | 0 | 11 | 0 | 3 | .. | 1 | 2 |
| Manilla ....per cwt. | 20 | 0 | .. | 38 | 0 | 25 | 0 | .. | 45 | 0 |
| Dammar, pale .... ,, | 55 | 0 | .. | 0 | 0 | 50 | 0 | .. | 55 | 0 |
| Euphorbium ...... ,, | 15 | 0 | .. | 17 | 0 | 13 | 0 | .. | 14 | 0 |
| Galbanum ........ ,, | 200 | 0 | .. | 260 | 0 | 200 | 0 | .. | 260 | 0 |
| Gamboge, pckd. pipe ,, | 215 | 0 | .. | 290 | 0 | 220 | 0 | .. | 260 | 0 |
| Guaiacum ..........per lb. | 0 | 0 | .. | 2 | 10 | 0 | 9 | .. | 2 | 4 |
| Kino..............per cwt. | 60 | 0 | .. | 90 | 0 | 60 | 0 | .. | 100 | 0 |
| Kowrie, rough.... ,, | 17 | 0 | .. | 32 | 6 | 27 | 0 | .. | 35 | 0 |
| scraped .. ,, | 34 | 0 | .. | 75 | 0 | 37 | 0 | .. | 90 | 0 |
| Mastic, picked......per lb. | 6 | 0 | .. | 7 | 0 | 6 | 0 | .. | 0 | 6 |
| Myrrh, gd. & fine per cwt. | 130 | 0 | .. | 190 | 0 | 120 | 0 | .. | 100 | 0 |
| sorts...... | 90 | 0 | .. | 120 | 0 | 80 | 0 | .. | 140 | 0 |
| Olibanum, p. sorts | 76 | 0 | .. | 30 | 0 | 70 | 0 | .. | 77 | 0 |
| amber & ylw. | 67 | 0 | .. | 75 | 0 | 60 | 0 | .. | 68 | 0 |
| garblings.... ,, | 10 | 0 | .. | 45 | 0 | 19 | 6 | .. | 43 | 0 |
| Senegal ..........per cwt. | 70 | 0 | .. | 82 | 6 | 70 | 0 | .. | 90 | 0 |
| Sandarac ........ ,, | 55 | 0 | .. | 105 | 0 | 55 | 0 | .. | 111 | 0 |
| Thus ............ ,, | 17 | 0 | .. | 0 | 0 | 13 | 0 | .. | 14 | 0 |
| Tragacanth, leaf.. ,, | 200 | 0 | .. | 450 | 0 | 220 | 0 | .. | 350 | 0 |
| in sorts ,, | 110 | 0 | .. | 180 | 0 | 115 | 0 | .. | 210 | 0 |

## OILS.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Seal, pale..........per tun | £30 | 10 | .. | 87 | 0 | £37 | 0 | .. | 0 | 0 |
| yellow to tinged ,, | 35 | 0 | .. | 36 | 0 | 33 | 0 | .. | 35 | 0 |
| brown........ ,, | 32 | 10 | .. | 0 | 0 | 31 | 0 | .. | 0 | 0 |
| Sperm, body ...... ,, | 90 | 0 | .. | 91 | 0 | 78 | 0 | .. | 0 | 0 |
| headmatter | 0 | 0 | .. | 0 | | 78 | 0 | .. | 0 | 0 |

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Oils, *continued*:— | £ | s. | | £ | s. | £ | s. | | £ | s. |
| Cod ................ per tun | 34 | 10 | to | 35 | 0 | 35 | 15 | to | 80 | 0 |
| Whale, South Sea, pale ,, | 80 | 0 | .. | 37 | 0 | 36 | 0 | .. | 0 | 0 |
| yellow ,, | 34 | 0 | .. | 35 | 0 | 35 | 0 | .. | 0 | 0 |
| brown ,, | 82 | 10 | .. | 0 | 0 | 81 | 0 | .. | 0 | 0 |
| East India, Fish ,, | 28 | 0 | .. | 28 | 10 | 82 | 0 | .. | 3 | 0 |
| Olive, Galipoli ...... ,, | 53 | 0 | .. | 54 | 0 | 49 | 0 | .. | 0 | 0 |
| Trieste ...... ,, | 50 | 0 | .. | 0 | 0 | 47 | 0 | .. | 0 | 0 |
| Levant ...... ,, | 50 | 0 | .. | 51 | 0 | 45 | 0 | .. | 0 | 0 |
| Mogador...... ,, | 49 | 10 | .. | 0 | 0 | 45 | 10 | .. | 46 | 0 |
| Spanish ...... ,, | 52 | 0 | .. | 52 | 10 | 47 | 10 | .. | 0 | 0 |
| Sicily ........ ,, | 52 | 0 | .. | 0 | 0 | 47 | 10 | .. | 0 | 0 |
| Cocoanut, Cochin.. per ton | 44 | 0 | .. | 45 | 0 | 45 | 0 | .. | 45 | 10 |
| Ceylon .. ,, | 37 | 10 | .. | 38 | 0 | 38 | 10 | .. | 39 | 0 |
| Sydney ,, | 32 | 0 | .. | 38 | 10 | 32 | 0 | .. | 37 | 0 |
| Ground Nut and Gingelly: | | | | | | | | | | |
| Bombay ................ | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Madras................ | 42 | 0 | .. | 0 | 0 | 43 | 0 | .. | 44 | 0 |
| Palm, fine ................ | 40 | 0 | .. | 0 | 0 | 38 | 10 | .. | 39 | 0 |
| Linseed ................ | 33 | 0 | .. | 0 | 0 | 30 | 5 | .. | 0 | 0 |
| Rapeseed, English, pale .. | 44 | 0 | .. | 0 | 0 | 48 | 15 | .. | 49 | 0 |
| brown........ | 42 | 5 | .. | 42 | 10 | 40 | 10 | .. | 47 | 0 |
| Foreign pale.... | 46 | 0 | .. | 46 | 10 | 50 | 0 | .. | 50 | 10 |
| brown........ | 0 | 0 | .. | 0 | 0 | 47 | 0 | .. | 0 | 0 |
| Cottonseed .............. | 34 | 0 | .. | 35 | 0 | 28 | 0 | .. | 33 | 0 |
| Lard.................... | 52 | 0 | .. | 54 | 0 | 73 | 0 | .. | 74 | 0 |
| Tallow .................. | 35 | 0 | .. | 0 | 0 | 35 | 0 | .. | 0 | 0 |
| Turpentine, American, cks. | 54 | 6 | .. | 0 | 0 | 34 | 6 | .. | 35 | 0 |
| Petroleum, Crude ........ | 0 | 0 | .. | 0 | 0 | 0 | 0 | . | 0 | 0 |
| | s. | d. | | s. | d. | s. | d. | | s. | d. |
| refined, per gall. | 1 | 0 | .. | 1 | 0½ | 1 | 6½ | .. | 1 | 7 |
| Spirit ,, | 1 | 2½ | .. | 1 | 3 | 0 | 11½ | .. | 1 | 0 |

## SEEDS.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Canary ............per qr. | 52 | 0 | .. | 58 | 0 | 48 | 0 | .. | 60 | 0 |
| Caraway, English per cwt. | 0 | 0 | .. | 0 | 0 | 40 | 0 | .. | 45 | 0 |
| German, &c..... | 31 | 0 | .. | 35 | 0 | 25 | 0 | .. | 34 | 0 |
| Coriander .............. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Hemp ..............per qr. | 40 | 0 | .. | 44 | 0 | 44 | 0 | .. | 48 | 0 |
| Linseed, English per qr... | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Black Sea & Azof | 62 | 0 | .. | 0 | 0 | 58 | 0 | .. | 0 | 0 |
| Calcutta ,, | 62 | 6 | .. | 0 | 0 | 59 | 3 | .. | 59 | 6 |
| Bombay ,, | 64 | 0 | .. | 0 | 0 | 60 | 0 | .. | 0 | 0 |
| St. Petrsbrg. ,, | 60 | 0 | .. | 0 | 0 | 56 | 0 | .. | 57 | 0 |
| Mustard, brown..per bshl. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| white.. ,, | 9 | 0 | .. | 9 | 6 | 9 | 0 | .. | 9 | 6 |
| Poppy, East India per qr. | 64 | 0 | .. | 0 | 0 | 57 | 0 | .. | 0 | 0 |

## SPICES.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cassia Lignea ....per cwt. | 112 | 0 | .. | 125 | 0 | 98 | 0 | .. | 112 | 0 |
| Vera ............ ,, | 42 | 0 | .. | 77 | 0 | 45 | 0 | .. | 80 | 0 |
| Buds ............ ,, | 130 | 0 | .. | 140 | 0 | 170 | 0 | .. | 200 | 0 |
| Cinnamon, Ceylon, 1st quality ....per lb. | 2 | 8 | .. | 3 | 9 | 2 | 0 | .. | 3 | 4 |
| 2nd do. ...... ,, | 2 | 0 | .. | 3 | 6 | 1 | 6 | .. | 3 | 2 |
| 3rd do. ...... ,, | 1 | 10 | .. | 3 | 0 | 1 | 7 | .. | 3 | 0 |
| Tellicherry ...... ,, | 2 | 7 | .. | 3 | 2 | 2 | 8 | .. | 2 | 10 |
| Cloves, Penang.... ,, | 1 | 3 | .. | 1 | 4 | 1 | 2 | .. | 1 | 3 |
| Amboyna........ ,, | 0 | 4½ | .. | 0 | 10½ | 0 | 5 | .. | 0 | 6½ |
| Zanzibar ........ ,, | 0 | 3⅝ | .. | 0 | 3¾ | 0 | 2⅞ | .. | 0 | 3 |
| Ginger, Jam., fine per cwt. | 90 | 0 | .. | 180 | 0 | 80 | 0 | .. | 180 | 0 |
| Ord. to good .. ,, | 44 | 0 | .. | 87 | 0 | 33 | 0 | .. | 77 | 0 |
| African.......... ,, | 30 | 0 | .. | 0 | 0 | 29 | 6 | .. | 0 | 0 |
| Bengal .......... ,, | 33 | 0 | .. | 0 | 0 | 26 | 0 | .. | 0 | 0 |
| Malabar ........ ,, | 0 | 0 | .. | 0 | 0 | 23 | 6 | .. | 26 | 0 |
| Cochin .......... ,, | 44 | 0 | .. | 110 | 0 | 32 | 0 | .. | 105 | 0 |
| Pepper, Blk, Malabar, per lb. | 0 | 7 | .. | 0 | 7¼ | 0 | 5½ | .. | 0 | 6½ |
| White, Tellicherry ,, | 0 | 0 | .. | 0 | 0 | 0 | 9½ | .. | 1 | 2½ |
| Cayenne ........ ,, | 1 | 0 | .. | 1 | 7½ | 0 | 8½ | .. | 1 | 4½ |
| Mace, 1st quality ..per lb. | 4 | 3 | .. | 4 | 8 | 3 | 2 | .. | 3 | 9 |
| 2nd and inferior.. ,, | 3 | 9 | .. | 4 | 2 | 2 | 5 | .. | 3 | 1 |
| Nutmegs, 78 to 60 to lb. | 3 | 6½ | .. | 4 | 4 | 2 | 3 | .. | 4 | 2 |
| 90 to 80 ,, | 3 | 4½ | .. | 3 | 6 | 2 | 4 | .. | 2 | 7 |
| 132 to 95 ,, | 3 | 0 | .. | 3 | 4 | 1 | 7 | .. | 2 | 3 |

## VARIOUS PRODUCTS.

| | 1871. | | | | | 1870. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| COCHINEAL— | | | | | | | | | | |
| Honduras, black ..per lb. | 2 | 8 | .. | 3 | 6 | 2 | 4 | .. | 3 | 6 |
| ,, silver .. ,, | 2 | 7 | .. | 2 | 10 | 2 | 4 | .. | 2 | 8 |
| ,, pasty .. ,, | 2 | 5 | .. | 2 | 6 | 1 | 9 | .. | 2 | 3 |
| Mexican, black .... .. | 2 | 8 | .. | 2 | 9 | 2 | 4 | .. | 2 | 6 |
| ,, silver .... ,, | 2 | 7 | .. | 0 | 0 | 2 | 3 | .. | 0 | 0 |
| Teneriffe, black.... | 2 | 8 | .. | 4 | 9 | 2 | 4 | .. | 3 | 9 |
| ,, silver.... ,, | 2 | 7 | .. | 2 | 9 | 2 | 3 | .. | 2 | 6 |
| PUMICE STONE ..per ton | 120 | 0 | .. | 150 | 0 | 120 | 0 | .. | 150 | 0 |
| SOAP, Castile ....per cwt. | 35 | 0 | .. | 0 | 0 | 35 | 0 | .. | 0 | 0 |
| SPONGE, Turk. fin pkd pr lb. | 12 | 0 | .. | 16 | 0 | 12 | 0 | .. | 10 | 0 |
| Fair to good .. ,, | 4 | 0 | .. | 11 | 0 | 4 | 0 | .. | 11 | 0 |
| Ordinary...... ,, | 1 | 0 | .. | 3 | 6 | 1 | 0 | .. | 3 | 6 |
| Bahama... ........ .. | 0 | 6 | .. | 2 | 6 | 0 | 6 | .. | 2 | 6 |
| TERRA JAPONICA— | | | | | | | | | | |
| Gambier .. per cwt. | 19 | 3 | .. | 10 | 6 | 15 | 6 | .. | 16 | 0 |
| Free cubes ,, | 22 | 0 | .. | 23 | 0 | 17 | 0 | .. | 19 | 0 |
| Cutch .... ,, | 24 | 6 | .. | 26 | 6 | 19 | 6 | .. | 22 | 0 |
| WOOD, Dye, Bar ..per ton | £3 | 15 | .. | £4 | 5 | £3 | 15 | .. | £4 | 0 |
| Brazil ............ ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Braziletto ........ ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Cam .............. ,, | 20 | 0 | .. | 22 | 0 | 17 | 0 | .. | 24 | 0 |
| Fustic, Cuba...... ,, | 0 | 0 | .. | 10 | 5 | 7 | 10 | .. | 8 | 10 |
| Jamaica ........ ,, | 7 | 0 | .. | 8 | 5 | 4 | 2/6 | .. | 5 | 10 |
| Savanilla........ ,, | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Logwood, Campeachy ,, | 9 | 10 | .. | 10 | 0 | 9 | 10 | .. | 10 | 0 |
| Honduras ...... ,, | 0 | 0 | .. | 0 | 0 | 5 | 10 | .. | 0 | 10 |
| St. Domingo .. ,, | 0 | 0 | .. | 0 | 0 | 5 | 10 | .. | 6 | 10 |
| Jamaica ........ ,, | 5 | 5 | .. | 5 | 7 | 4 | 2/6 | .. | 4 | 5 |
| Lima, first pile.... ,, | 8 | 10 | .. | 10 | 0 | 10 | 6 | .. | 11 | 0 |
| Red Sanders...... ,, | 7 | 0 | .. | 0 | 0 | 5 | 10 | .. | 0 | 0 |
| Sapan Bimas &c. ,, | 7 | 0 | .. | 9 | 0 | 7 | 0 | . | 9 | 0 |